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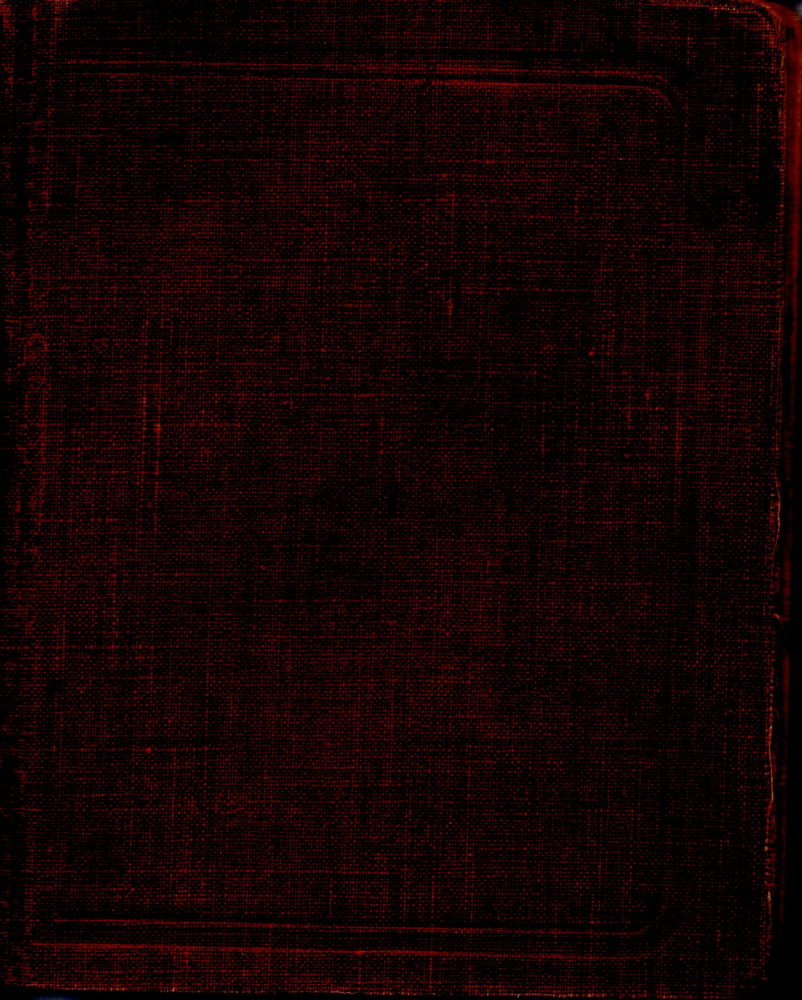
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Artillery, Royal—continued.

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Organisation and Employment of Artillery in War. 1s. 6d. (1s. 5d.)

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Cape of Good Hope Reconnaissance Survey, 1903-1911. Report on the. 1914. 1s. 6d. (1s. 1d.)

Casualty Lists, Weekly, War Office and Air Ministry. No. 1. Aug. 7, 1917, to No. 83, March 4, 1919. Each (4d.)

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Cavalry Training. 1921. Vol. I. Training. Provisional. 2s. (1s. 9d.)

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Equipment Regulations—continued.

Part 2. Details—continued.

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Do. Details:—

Sec. IX. Artillery. 1912.

(Out of print)

Do. Amendments, April 1912; Feb. 1914. Each 1d. (1d.)

Sec. X. Engineer. 1912. 3d. (4d.)

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Amendments to Parts 1, 2 and 3. Sept. 1920. 2d. (2d.)

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Amendments to Part 1. Oct. 1921. 1d. (2d.)

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Entrance: R.M. Academy; R.M. College; Indian Army College, Wellington. Nov.-Dec. 1915. 1s. (10d.)

(As to prices in brackets, see top of page 2.)

Examination Papers:—

Entrance: R.M. Academy; R.M. College; Indian Army College, Quetta. Cadetships in the Royal Navy (Special Entry). March 1918. 6d. (6d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force. Nov. 1919. 2s. (1s. 7d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force; Supplementary First Appointments in the Royal Marines. Cadetships in the Royal Navy (Special Entry). June 1920. 2s. (1s. 8d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force. Nov. 1920. 2s. (1s. 9d.)

Entrance: R.M. Academy, Woolwich; R.M. College, Sandhurst; Royal Air Force; Supplementary First Appointments in Royal Marines; Cadetships in the Royal Navy (Special Entry); Indian Police Force; Police Forces of Straits Settlements; the Federated Malay States, and the Unfederated Malay States. June and July 1921. 3s. 6d. (2s. 11d.)

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R.M. Academy, Fourth Class; R.M. College, Fourth, 1s. Third, and Second Divisions. July, Dec. 1904. Each 1s. June 1905. 1s. (1s. 2d.)

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Militia, Imperial Yeomanry, and University Candidates. Oct. 1906. 1s. (11d.)

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Foreign Languages. Modern. June 1919. 1s. (1s.) Jan. 1920. 3s. (2s. 5d.); June 1920. 2s. (1s. 9d.); Jan. 1921. 3s. (2s. 5d.); June 1921. 5s. (4s.); Jan. 1922. 1s. 6d. (1s. 3d.)

Staff Colleges at Camberley and Quetta. Report on the Examination for Admission. With Examination Papers and Remarks of the Examiners thereon. Feb. and March 1921. 2s. (1s. 10d.) Feb. and March 1922. 2s. 6d. (2s. 3d.)

(As to prices in brackets, see top of page 2.)

Family Allowance.

See also PAY FOR SOLDIERS AND SEPARATION ALLOWANCE.

Field Allowance to the Commander of an Army and to the Commander of an Army Corps or Group of Divisions; **Promotion of Lieutenants** of the Army Veterinary Corps, Special Reserve, and Territorial Force; **Bounty to Soldiers.** Special Army Order, June 23, 1916. 1d. (2d.)

Field Almanac. 1918. 1d. (2d.)

Field Service Manuals:—

Ammunition Column. Divisional. New Armies. 1915. 3d. (d.)

Artillery. Heavy. (B.L. 60-pr.) Battery and Ammunition Column, Expeditionary Force. 1916. 3d. (3d.)

Artillery. Horse. Brigade. 13-pr. Q.F. 1908. 3d. (3d.)

Cavalry Regiment. Expeditionary Force. 1913. 3d. (3d.)

Engineers. Bridging Train. Expeditionary Force. 1915. 3d. (3d.)

Do. **Field Company.** Expeditionary Force. 1915. 3d. (3d.)

Do. **Field Squadron.** Expeditionary Force. 1914. 3d. (3d.)

Do. **Works Company.** Expeditionary Force. 1910. 3d. (3d.)

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1924.



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SMALL ARMS TRAINING

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CHAPTER I.

ANNUAL COURSES, RANGE AND BATTLE PRACTICES.

REGULATIONS FOR THE CONDUCT OF ANNUAL COURSES AND RANGE PRACTICES.

1. General remarks.

1. The issue of the light automatic weapon to the foremost fighting troops, the existing organization and the terms of recruitment of Regular Cavalry and Infantry necessitate that every soldier shall be trained in the use of this weapon in addition to the rifle.

2. The annual courses, therefore, are designed to meet this need and are carried out according to a progressive sequence as under :—

(a) The recruit while at his depot will be trained in elementary rifle and light automatic shooting.

(b) On joining his unit he will be given further instruction in both the rifle and light automatic. Practice ammunition is allotted with a view to make him first a trained rifleman and, further, to prepare him for his advanced training in the light automatic.

(c) As soon as the soldier has shown himself sufficiently expert in the use of the rifle (*i.e.*, reached the standard of Marksman or 1st Class Shot) or in any case on completing approximately half his normal service with the Colours, he will expend the larger proportion of his allotted ammunition in practices designed to make him a trained light automatic shot. He will, however, during the remainder of his colour service be refreshed annually in rifle shooting, and will classify annually in rifle as well as light automatic.

3. Practice ammunition is distributed between the various arms of the service on the following basis :—

(a) To those branches of the Regular Army which fight primarily with the rifle and light automatic, *i.e.*, Cavalry, Infantry and R.E. Field Units, is allotted the greatest share.

(b) To other branches of the Regular Army which are armed with the rifle and with the light automatic for use in emergency and for anti-aircraft defence, only sufficient rounds are allotted to enable these weapons to be used effectively when required.

(c) Territorial Army units are allotted a proportion of rounds consistent with their limited periods of training.

2. *Military marksmanship—Basis on which the annual courses are framed.*

1. **A military shot.**—A military rifle shot may be defined as a man who can :—

i. **Fire with accuracy.**—In the case of the rifle this standard of accuracy should be approximately a 4-inch group at 100 yards, and a similar increase of 4 inches for each further hundred yards of range.

ii. **Take a snapshot, *i.e.*, deal with a fleeting target.**

iii. **Produce volume, *i.e.*, approximately 15 rounds per minute without appreciable loss of accuracy.**

iv. **Combine fire with movement, *i.e.*, quick, accurate shooting before and after movement.**

2. **A trained light automatic shot.**—A trained light automatic shot should be capable of :—

i. Preparing the gun for firing and maintaining it in action.

ii. Carrying the gun and bringing it quickly into action on any nature of ground.

iii. Firing with accuracy at various rates up to 150 rounds a minute according to the requirements of various types of targets likely to be encountered in battle.

iv. Observing fire and correcting application accordingly.

v. Firing with effect at low-flying aircraft.

vi. Performing the duties of any "number" in the light automatic section.

3. It is to produce efficiency by practice in these essential qualities of military marksmanship that the range practices for the Army have been designed.

These qualities should also be taken into consideration by those responsible for framing battle practices and competitions.

3. *Individual weapon training and preliminary training prior to the annual test.*

1. Individual weapon training of the leader, the soldier and the recruit will take place throughout the year.

2. Individual weapon training comprises the instruction in the training for firing the various small arm weapons under all conditions; in the use of ground and formations as they concern the individual leader or man, in visual training, judging distance, indication and recognition of targets; in fire orders or fire discipline as the case may be.

3. In order that the fullest value may be derived from the ammunition allotted for range practices, a period will be allotted in training programmes for training in the use of any particular weapon prior to the annual test or classification.

4. This period will be known as the Preliminary Training Period, and will vary from a week to a month, according to the opportunities and time that have been afforded to individuals during the year.

Preliminary Training Period for a recruit.

5. In the case of a recruit, *individual weapon training and the preliminary training period* are identical and begin from the moment when the recruit is issued with his rifle.

6. The individual weapon training of recruits should be in progressive stages, and, those tests of elementary training (see Vol. I, Secs. 67-69) which are applicable to the subjects

already taught the recruits, will be applied towards the end of each stage to find out the progress made. If the progress is not satisfactory, the causes of failure to reach the standard should be investigated and the recruit should receive further instruction.

7.—i. Recruits, before they begin firing on the miniature range, must reach a satisfactory standard in aiming, holding and trigger pressing.

ii. After an instructional course on the miniature range, recruits will fire the **Empire Miniature Range Test**.

8. Recruits, after firing the **Empire Miniature Range Test** satisfactorily, will be given further training in the rifle to correct any faults observed when firing this test and to prepare them to fire .303" ammunition.

9. Recruits of the Regular Cavalry and Infantry will also be taught how to fire and clean the light automatic. This instruction will not take place until the recruit has fired the Empire Miniature Range Test, and normally he should not fire the light automatic until he has fired the rifle test or classification practices of Table A.

Preliminary Training Period of a trained soldier.

10. **Use of the tests of elementary training.**—As soon as the company, casual party, &c., has been assembled for the *preliminary training period*, the tests of elementary training (applicable to the particular weapon) will be applied to each individual and a record of the results will be made. The officer in charge of the company or party will scrutinise these results carefully and on them base the programme for the period, giving a larger proportion of time to those subjects in which the men have failed to reach the standard in the tests.

By this method, only, will full value be derived from the *preliminary training period* and satisfactory results obtained for the ammunition expended in the test or classification practices.

(See Vol. I., Secs. 67, *et seq.*, 70-71 and 124 or 142-143.)

11. Towards the end of the *preliminary training period* the tests of elementary training will again be applied to find out whether the training has been satisfactory, what progress has been made, and whether the men are fit to begin firing.

12. In units where it is impracticable to collect companies together for the *preliminary training period* (e.g., Territorial Army units), individuals should be encouraged to reach the required standard before beginning range practices by working in pairs or threes in any available or spare time.

13. *Use of miniature and 30-yards ranges.*—Firing on the miniature and 30-yards ranges can be usefully employed during this period (see Vol. I., Secs. 72-77).

4. Regulations affecting the general conduct of annual courses.

1. **Local range orders.**—General officers commanding will cause such orders to be framed as local conditions necessitate to ensure safety, and will arrange that copies are always available for reference during practice.

These orders will contain information as to the range duties required on ranges of large extent, used by several units at one time. They should be as brief as possible, and should contain no amplification or repetition of the instructions laid down in the regulations. The duties of range wardens should be detailed. Certificates of handing, and taking, over stores for daily use and return should be unnecessary.

2. **Weather in connection with range practices.**—Although practice on the range should be carried out throughout the year, classification practices should be fired during the time of year most favourable for individual firing.

It should be remembered, however, that if *any* range practices are fired in inclement weather, the value of the instruction is likely to be lost. This applies especially to recruits' firing.

3. **Order of firing range practices.**—Range practices should, as a rule, be fired in the order in which they appear in the tables, but brigade commanders may vary the order at their discretion. When *deliberate* and *rapid* practices are fired at the same distance, each man will fire the *rapid* practice immediately after the *deliberate* practice.

4. When firing the light automatic practices of *ranging*, *application* and *distribution* at the same distance, each man will fire the *application* practice after *ranging*, and the *distribution* practice immediately after the *application* practice.

5. **Dress.**—Fighting order will be worn when firing:—

- (a) Classification or test practices for trained men.
- (b) Instructional practices in the part of the course immediately preceding the classification or test practices.
- (c) All battle practices.

6. **Scoring books.**—Every soldier will keep a record of the results of each practice, together with the prevailing conditions of light and atmosphere, and the sighting elevation which he found to be necessary. The cause of any failures will be noted. The results of tests of elementary training

and judging distance should also be recorded. An official issue of scoring books (Series A.B. 142) is made for this purpose.

7. **Boys.**—Boys will be trained in the use of the rifle at the discretion of their commanding officers.

8. **Practices begun but not completed.**—If a man has fired one or more rounds in any range practice and is prevented from completing it, the points made will not count, and the whole practice will be begun again when his training is resumed.

9. Exemptions.—

- (a) Every soldier not exempted by the King's Regulations, or this manual, will carry out the full courses laid down for his branch of the service.
- (b) Provided that the individual has been classified or has qualified once in both rifle and light automatic, and unless the G.O.C.-in-C. of the Command orders otherwise, the following categories will be exempt from firing the annual classification tests, and will be classified according to the standard which they obtained when they last fired.

All warrant officers, Class I.

Warrant officers, Class II., except cavalry and infantry.

Staff sergeants.

W.Os. and N.C.Os. of physical training staff.

- (c) Partial exemptions are shown in the notes on the various courses.

10. Casuals.—

- (a) Every endeavour must be made to ensure that subaltern officers and other ranks of the Regular Army fire the annual courses with the company to which they belong. Machine gun platoons will be treated as complete units and will fire their annual courses attached to a company or to a party of casuals; other personnel in the Headquarter wing may fire either attached to a company or as casuals.
- (b) All men not fully exercised in the annual courses with their companies will be attached to other companies to carry out the range or battle practices omitted; or if all companies have completed their annual course, a party of casuals will be formed to ensure that all men not exempted are fully exercised.
- (c) Soldiers who have missed the whole or a portion of the range practices and have become available to begin the battle practices with their companies may, if they are known to be good shots, be allowed by their commanding officers to execute the battle practices and fire the range practices subsequently.

11. **Detached men.**—The commanding officer will apply that a soldier detached from his unit may be exercised, at the station where he is serving, with a unit of his own branch of the service.

12. **Averages.**—Averages made by companies in each of the test or classification practices will be calculated to one place of decimals and published in regimental orders. Only

the scores of those officers, non-commissioned officers, and men who completed a practice will be included in the numbers by which the total points made in that practice are divided. Points made by casuals will be included at the end of the year and fresh averages struck. The sum of the averages of the practices of each of the Test or classification parts will be termed the company "average" for the rifle or light automatic.

13. Annual classification.—

- (a) With the exception of those who are exempted by regulations (*see para. 9 of this section*), every man will be classified on the day he completes the annual test (*Table R, Part IV, Table L, Parts II and IV; or Table T, Part I or Part II*), or if for any reason he fails to complete these tests, then on the last day of the Weapon Training Year.
- (b) Trained men, not exempted by the regulations, who for any reason do not begin Table R, Table L or Table T, will be classified as third-class shots. Those who begin the test or classification part of any Table, but do not complete it, will be classified according to the number of points obtained.
- (c) A note will be made in the company and battalion annual returns of the number of men (if any) who are classified without having completed the range practices of Table R, Table L or Table T.
- (d) In the case of a man transferred to another company in the same unit or to another unit, the scores made in classification practices will be counted among those of the company to which he belonged when he fired.

- (e) The Best Shooting Company will be decided by the C.O., who will take into consideration the averages made in the Test or Classification Parts for both rifle and light automatic and by the results in any further test that he may see fit to lay down.

5. Regulations affecting the general conduct of range practices.

1. Regulations affecting rifle firing positions.—

(a) General.

- i. A coat or waterproof sheet may be used to protect the uniform.
- ii. Except when firing from cover or when rests are authorised, neither rifle, forearm, wrist, nor hand is to rest against any object or to be supported.
- iii. In range practices the regulation positions are obligatory, except in firing from cover, when the rifle should be rested and the position adapted to the ground. This permission includes resting the arm as well, but the cover is not to be specially constructed as a rest for the rifle.
- iv. In firing from behind cover, the position adopted must be such as would, on service, enable the firer to obtain the fullest protection from the cover, having due regard to the efficiency of his fire. In the lying position, the grip of the left hand must be maintained on the rifle, and there must be no undue exposure of the shoulder or legs.

(b) **Lying behind cover.**—When firing in this position, the *butt* of the rifle will be in contact with the ground, and the firer will remain in observation, but otherwise completely covered, until the target appears or the command to fire is given.

(c) **Firing in the open.**—When snapshooting or rapid firing in the open, the rifle may be held in the aiming or loading position as preferred.

(d) **Standing or kneeling behind cover.**—In all rapid firing or snapshooting practices in these positions the firer, having loaded under cover, will be in observation during the whole of the practice. Except when the target is exposed, the whole of the rifle (including the bayonet when fixed), will be kept below the cover and the rifle held in a position of readiness as follows:—

- i. The right hand grasping the *small of the butt* at the full extent of the right arm; the left hand at the *nose cap, trigger guard* to the right,
- ii. If this is not possible owing to the shape of the cover or the build of the firer, the *butt* may be rested on the ground and the rifle held at the *nose cap* with the left hand.

- iii. In snapshooting, the rifle will be reloaded before returning to cover. When more than five rounds are to be fired, the *magazine* will be recharged with the rifle held on the top of the cover.

2. **Charger loading.**—Loading in all practices will be by *charger* through the *magazine*.

In rapid practices, unless otherwise stated in the special instructions for the conduct of the practice, the rifle will be loaded before the target appears, four rounds being in the *magazine*.

3. **Windgauge.**—The use of the windgauge is not permitted in practices on the open range.

4. **The fine adjustment** may be used in any practice.

5. **Use of sling.**—The sling will not be used for steadying the rifle when firing.

6. **Sighting shots.**—No sighting shots are allowed.

7. **Occasional shots.**—Occasional shots to verify elevation or strength of wind, or to prove the accuracy of the weapon, may sometimes be fired by an officer or non-commissioned officer, with the senior officer's permission. They will not be fired during practices of the classification or qualification Tests. Notification of their beginning and end will be made to the officer in the butts by telephone, signal or bugle sound. The target in use will be lowered and checked, and a clean one raised for the occasional shots. When they are completed, it will be lowered and checked, and the original target raised for the firer to complete his rounds.

8. **Allowance for jams and misfires.**—

- (a) If a jam occurs in a timed practice and is not caused by any fault of the firer, the time allowed for the practice will be increased to the extent due to the delay caused thereby. Should, however, a jam in a rapid practice be due to a breakage of mechanism or other defect that cannot readily be rectified on the range, the whole practice will be fired again.

- (b) In the event of missfires, extra rounds will be allowed equal to the number of missfires which occur in the practice concerned, a proportionate part of the time allowed for the whole practice being given for each extra round.

9. Allowance for stoppages and missfires, light automatic.

- (a) In the case of a stoppage caused by a breakage or defect in the mechanism, extra time will be given in proportion to the time lost thereby, but if the cause can be traced to neglect on the part of the firer in attending to "Points before Firing" no allowance will be made.
- (b) In the case of missfires, the superintending officer will allow the firer another round for each missfire.

10. Forfeiture of rounds.—Omission to fire the rounds allotted or failure to fire during an exposure will entail forfeiture of the rounds that should have been fired, and misses will be recorded for them.

6. Special regulations for the conduct of grouping practices.

Grouping practices: Miniature and 30-yard ranges.

1. On the Miniature and 30-yard ranges the procedure will be the same as detailed for the open range, except that—

(a) Rifle.

- i. Targets will be examined after one detail has fired.
- ii. The groups will be measured with wire rings 1, 2 and 3 inches in diameter, counting 25, 20 and 15 points respectively: 10 points will be allowed for a 3-inch group with one wide shot.

(b) Light Automatic.

- i. Four or five details may fire before the target is examined.
- ii. Groups will be measured with wire rings 2, 3 and 4 inches in diameter, in all cases allowing one shot to be "wide."

Grouping Practices: Open Ranges.

2. One firer will be detailed to each target and will fire five shots, maintaining the regulation point of aim throughout. Targets will be changed, and a second detail of men will then fire similarly.

3. Both details will then proceed to the targets, see their groups measured, and note the positions of the mean points of impact with reference to the points aimed at.

4. When for any reason it is found impracticable to send the firers into the gallery after a grouping practice, the following signals may be used:—

Bull's-eye signal denotes a 4-inch group.

Inner	"	8	"	"
Maggie	"	12	"	"
Outer	"	12	"	" with one wide shot.

When the signal has been made, after a short pause the centre of the marking disc will be placed on the mean point of impact of the group.

5. The groups will be measured with wire rings, 4, 8 and 12 inches in diameter, counting 25, 20 and 15 points respectively; 10 points will be allowed for a 12-inch group with one wide shot.

6. The size of ring which contains all the shots will be recorded as the measure of the group. A shot mark is

included within a ring when it cuts the circumference of the largest circle which can be described within that ring by means of a pencil held at right angles to the target.

7. No points will be allotted to a group unless there are five shot marks on the target. If more than five shot marks are found on the target there will be no score, and the practice will be repeated.

8. On return to the firing point, other details will fire, but steps will be taken immediately to ascertain the cause of any bad shooting of men in the previous two details. (Sec. 7, 5).

7. General instructions on grouping practices.

1. Individual grouping is an exercise in firing a series of shots (usually five) at a definite aiming point without alteration of aim or sighting during the series. As it is necessary to exclude atmospheric influences as much as possible, the range should not exceed one hundred yards.

2. The term "group" is used to define the diagram made on the target by the series of shot marks. The value of such a group is determined by the relative closeness of the shot marks.

3. The group is measured by means of rings of various sizes, and points are allotted according to the size of the ring which will contain all the shots, or, when specially prescribed, all the shots but one, which is called a "wide shot." When the ring is placed to include all the shots, the centre of the ring will be taken as approximately the *mean point of impact*; its distance from, and direction with reference to, the point aimed at will be recorded in the man's scoring book.

4. The position of the *mean point of impact*, with reference to the mark aimed at, has no influence on the value of the group. Its position is, however, of great importance for instructional purposes, because it indicates approximately the error of the rifle, and gives information as to any consistent fault of the firer.

5. Should a soldier make a bad group, and the rifle be suspected as the cause, it should be at once fired under similar conditions by a reliable marksman. Should the marksman also make a bad group with the rifle, the rifle should be tested. If found "inaccurate," the man to whom the rifle belongs should be allowed to recommence the course, the necessary ammunition being found from the authorised allowances for this purpose. If the rifle is proved accurate, the soldier's aim and trigger-release should be tested. If these measures do not reveal the cause of failure, his eyesight and nervous condition should be examined.

6. A complete analysis of the faults of the firer and his rifle should be made before leaving the range, and a note should be made, on the register, of the steps decided upon for remedying defects.

NOTES FOR INSTRUCTORS.

7. Unsteadiness may be traced to lack of determination, to illness, or to some habitual excess, such as cigarette smoking. The position of the shots on the target may indicate errors in aiming; they may show that the firer moves his shoulder forward to meet the shock of discharge, which action tends to throw the shots low left, or that he flinches from the shock, which action sends them high. If

the *trigger* is jerked by the wrist instead of being pressed by a gradual squeezing motion between the forefinger and thumb, shots will usually strike low right.

8. Instructors should note carefully the positions of good groups as well as bad ones, for some constant error in aiming or fault in the rifle may thus be discovered. This would escape notice in an application practice when every shot is signalled and errors are commonly attributed to wind or other causes. Such errors are not uncommon, even among marksmen, and often affect their shooting unfavourably in battle practices, when each successive shot is not signalled.

9. Some men can aim quickly but lose their power of definition when straining the eye. In serious cases soldiers should be medically examined with a view to the provision of proper glasses or to discharge from the Service.

10. The will power of men who have shown nervousness may be developed by physical training exercises. Faults may sometimes be remedied at once by correcting the firer's positions, by allowing time to elapse between the shots or by snapping practice. Sometimes the cause of the failure is due to the firer's effort to succeed; he dwells too long on his aim, his muscles become tired, the vision becomes blurred and his will power is impaired. Patience is necessary in such cases.

8. *Regulations affecting the general conduct of application (slow) practices.*

1. When a man has fired his grouping practices he will be instructed in applying his shots to a definite mark. This form of practice, in which aim or sighting elevation is altered as may be found necessary, is called "*Application*" (*slow*).

2. **Application (slow) practices.**—In these practices 20 seconds is the time limit allowed for each shot, reckoned from the order to fire. An extra 5 seconds from the completion of the signalling of the last shot may be allowed for altering the sighting elevation.

3. If there is a tendency to exceed the limit, but not otherwise, a whistle should be used to mark the beginning and end of each period.

4. **Light automatic.**—The time limit for application practices is prescribed in the light automatic parts of the various Tables.

9. *Regulations affecting the general conduct of timed practices.*

1. **General.**—In cases where the normal procedure cannot be adopted for any reason, the targets may be fully exposed before the practice starts and the timing of the practice will be carried out at the firing point. For every shot fired after the order or signal to cease fire has been given, the value of the highest hit obtainable by a single shot will be deducted.

2. In all practices in which the timing is controlled from the butts, the officer superintending at the firing point will satisfy himself that the timing is correct by occasionally checking the length of the exposures from the firing point.

3. In all timed practices, the movements of raising and lowering must be carried out with the utmost rapidity, but without damaging the targets or jarring the target frames.

4. **Snapshotting practices.**—In all snapshotting practices the timed exposures of the target will be controlled by the officer on butt duty. The exposure will be reckoned from

the time when the target is in position and stationary, to the moment when it is again moved for lowering.

5. **Rapid practices.**—In rapid practices the time will normally be regulated from the butts as in para. 1 above. In these cases the actual fire order by the officer superintending at the firing point will be in anticipation of the targets appearing. This officer will inform the officer in the butts when the detail is prepared to begin the practice by means of some simple signal, by telephone, or by flag.

6. **Fire in respirators.**—It is essential that the eye pieces should be carefully inspected, and if necessary cleaned, just before carrying out these practices. The practices fired in respirators will be found to be easy or difficult in direct proportion to the thoroughness of the preliminary training off the range.

7. **"Fire with movement" practices with light automatics.**—In these practices as laid down in Appendix 1 of this Manual (viz., *Table R, Part VI, Practice 5; Table L, Part I, Practice 8; Table L, Part II, Practice 16; Table T, Part III, Practice 15*); if any gun is not clear at the end of the time limit laid down for the "interval" (between the order "cease firing" and the order "advance,") the conducting officer will extend the time limit of the interval until all firers have cleared their guns and are ready to advance.

10. *Instruction during practices.*

1. No instruction to assist the firer may be given during *classification or test* practices once he is on the firing point, except in the cases of Tables A and T.

2. During *instructional* practice, instruction not only may, but should, be given the firer.

NOTES FOR INSTRUCTORS ON THE FIRING POINT.

3. Instruction on the firing point is an indispensable form of rifle instruction for young soldiers. Without it, expenditure of ammunition only confirms the firer in his errors and his faults are obscured. During the firing the instructor should watch the recruit, not the target, and should insist on being told the probable result of the shot before it is signalled.

4. The correct firing positions should be adopted; the rifle must be gripped, the face kept back from the right hand, and there should be no constraint.

5. The management of the breathing, and the trigger release must be closely noticed. The firer's mind should be centred on the essentials of shooting and not on changes of wind or light, with which he will become familiar later.

6. Although care and deliberation are necessary in elementary firing instruction, recruits must not be allowed to fall into the habit of dwelling on their aim. This defect arises chiefly from taking a fine sight and accommodating the eye so as to obtain a defined image of the foresight rather than the target. When such methods are adopted it is a sign that the object of range practices is misunderstood, and that the firer is in need of more preliminary instruction.

7. In snapshooting practices, when firing from behind cover the least possible movement and exposure should take place.

8. Snapshooting should be occasionally practised by trained men on 30 yards and miniature ranges with miniature ammunition, so that any tendency to jerk at the *trigger* may be detected and overcome.

9. In rapid firing a man of normal temperament should be able to attain the regulation rate with trifling loss of accuracy, but it is not desirable to make a great sacrifice of accuracy to produce even the regulation rate. Dexterity in loading and a habit of rapid alignment of the *sights* should be developed in preliminary training; in the range practices the opportunity is afforded to every man to ascertain his own best rate for combining accuracy in shooting with rapidity of fire so as to produce a high average of hits per minute. There is, however, no obligation to fire all the rounds allotted in any rapid practice.

11. Range duties.

1. Supervision during classification or test practices for trained men.

- i. During the classification practices fired by trained personnel, *i.e.*, Table R, Part IV; Table L, Parts II and IV; Table T, Part I or Part II; officers, non-commissioned officers and men from units other than that which is firing will be detailed (under the orders of brigade or area commanders) for all duties of supervising and marking.
- ii. For the above classification practices, the duties referred to in paras. 8 and 9 of this section will be scrupulously carried out.
- iii. If markers cannot be found from other units, officers at least will be specially detailed from other units for supervision at the butts and the firing point.
- iv. Officers of the company which is firing will be detailed to assist superintending officers at the

firing points as may be necessary. In rapid practices their special duty will be to report on any jams that may occur.

2. **Supervision during instructional practices.**—The duties in the butts during instructional practices will be carried out under N.C.Os. with such supervision by officers as may be considered necessary.

3. **Safety precautions, general.**—To guard against accidents the following orders will be observed:—

- i. No firing will take place until a large red danger flag is hoisted on the signal staff at or near the butts, and the necessary look-out men posted.
- ii. A smaller red danger flag will be hoisted at the butts as a warning to cease fire. This flag will remain exposed during the entire period of cessation of fire, and will not be withdrawn until the whole of the butt party is under cover. No one will leave the butts until the cessation of fire has been notified from the firing point.
- iii. A red flag will be kept raised at the firing-point when no firing is taking place, and will be lowered only on the order of the superintending officer. This order will not be given until the flag at the butts has been withdrawn.
- iv. When cessation of fire is required, the superintending officer at the firing point will give the order. When all fire has ceased, he will cause the red flag to be raised, and the butt party to be informed.

4. **Safety precautions when firing light automatics.**

- i. No one except the instructor, the superintending officers, and the two gun "numbers" will be within 20 yards of the firing point.

During the firing of practices at 25 yards, the superintending officer may make special arrangements to call those waiting to fire up to a position from which they can hear the instruction and criticism, but even then they must be at least 5 yards in rear of the firer.

- ii. No one may be in front of the Lewis gun *magazine post* or Hotchkiss gun *tripod* when the gun is on the firing point.
- iii. Whenever either the butts or firing point danger flag is hoisted, no one will be allowed to touch any gun which is on the firing point.
- iv. When the order "Unload" is given the gun will be cleared without firing the round in the *feedway* and the two gun "numbers" will at once stand up, the firer reporting "No..... Gun clear."
- v. A gun must never be stripped to change any part or repair a breakage until the gun is "clear."
- vi. In case of a stoppage no one other than the two gun "numbers" will be permitted to touch the gun, except by the permission of the superintending officer.
- vii. Before a gun is removed from the firing point it will be inspected by an officer to ensure that it is "clear" of ammunition.
- viii. *Magazines* will be loaded at least 20 yards in rear of the firing point, and no ammunition will be near the gun until the practice is about to begin. Empty and partially empty *magazines* will be removed from the firing point immediately after each firer has finished the practice.
- ix. After firing, all "live" rounds will be carefully separated from the empty cases.

5. Special Safety Instructions for Anti-Aircraft Practices.—As certain anti-aircraft practices are fired at a range of 10 yards, it is quite possible that the construction of some ranges may cause difficulty in arranging the targets suitably.

Before the practices are allowed to be fired on any range the following points will be considered by the responsible authority and special instructions issued to suit the local conditions:—

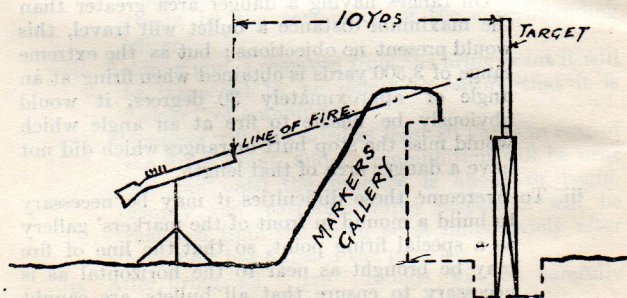
- i. When the targets are to be used in the ordinary frames, if the markers' gallery is raised much above the ground level it is probable that the firer's line of fire will be blocked by the bank of the markers' gallery. (See Diagram A.)
- ii. In other cases it is quite possible that the firer will have an uninterrupted line of fire to the target, but that the bullets may go over the top of the stop butt, as in Diagram C.

On ranges having a danger area greater than the maximum distance a bullet will travel, this would present no objections; but as the extreme range of 3,500 yards is obtained when firing at an angle of approximately 30 degrees, it would obviously be unsafe to fire at an angle which would miss the stop butt on ranges which did not have a danger area of that length.

- iii. To overcome these difficulties it may be necessary to build a mound in front of the markers' gallery as a special firing point, so that the line of fire may be brought as near to the horizontal as is necessary to ensure that all bullets are caught by the stop butt. (See Diagram B.)

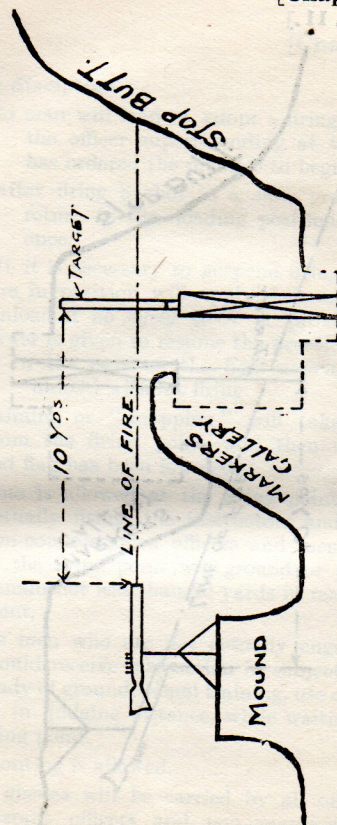
- iv. If the above considerations present no difficulty, better value is obtained in the practices if the targets can be placed at an angle of about 45 degrees above the horizontal line of fire.
- v. In all cases it is necessary that the distance from the target to the gun is absolutely correct, otherwise the deflection given by the sights will not coincide with the position of the skeleton planes on the targets.
- vi. In traversing practices precautions must be taken to ensure that the line of fire when traversing is kept within the width of the danger area of the local range.

DIAGRAM "A".



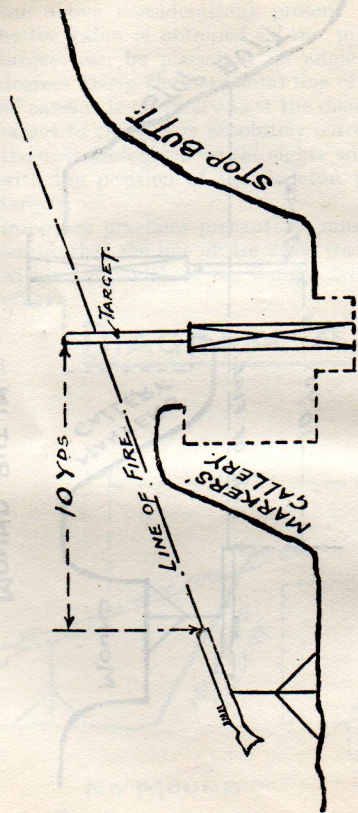
NO MOUND :-
BULLETS HIT MARKERS GALLERY

DIAGRAM "B".



MOUND PUT IN :-
LINE OF FIRE HORIZONTAL.
BULLETS HIT STOP BUTT.

DIAGRAM "C."



UNSAFE

**BULLETS DO NOT HIT STOP BUTT.
THEREFORE UNSAFE UNLESS DANGER AREA
EXCEEDS EXTREME RANGE.**

6. Range discipline.—

(a) i. No man will load or adopt a firing position until the officer superintending at the firing point has ordered the practice to begin.

ii. After firing a shot in a slow practice, men will return to the loading position and reload at once.

iii. If it is necessary to suspend firing, all men who are in position will apply their *safety catches* (or unload if no *safety catch* is provided) until the order is given to resume the practice.

In the case of the *light automatic*, they will unload without firing.

(b) No aiming or "snapping" will take place except from the firing point, and then only after the red flag has been lowered.

(c) No one is allowed at the firing point except those actually firing, the instructors and officers. All non-commissioned officers and men not on duty at the firing point will ground or pile arms and remain not less than 20 yards in rear of the firing point.

(d) Those men who are not actually engaged in firing should receive instruction in subjects such as the study of ground, visual training, use of field glasses, or in judging distance, while waiting behind the firing point.

(e) No shouting is allowed.

(f) Field glasses will be carried by all officers and by warrant officers and non-commissioned officers

equipped with them. The men should be encouraged to use them during spare time on the range.

- (g) The *sights* will be used as issued, without alteration of any kind. They may not be blackened. No additions, marking or colouring are permitted, nor are orthoptics allowed.

7. Butt parties.

- i. Permanent butt parties should not be required; companies or parties at practice usually have time to perform any necessary work.
- ii. Minor duties, such as hoisting flags, &c., should be carried out by the range warden permanently employed on the range. It may, however, be necessary to detail special look-out men from the butt party.
- iii. Two markers will be allotted to each target.
- iv. For classification or test practices, officers will be detailed to check the hits and supervise marking in the butts, in the proportion of one officer to a group of not more than four targets.
- v. A non-commissioned officer not under the rank of corporal will be detailed to assist each officer on butt duty.

8. **Duties of an officer on butt duty.**—The duties of an officer on butt duty in a gallery range are as follows:—

- i. To see that the targets are of the proper dimensions and sufficiently clean to enable shot holes to be easily distinguished, and that all old shot holes are properly patched before practice begins.

- ii. To see that the butts and appliances are in good order, and to report any damage or deficiency.
- iii. To explain all regulations and local orders to the markers and to ensure their observance.
- iv. To detail markers to the targets.
- v. To ensure that no target is lowered without his express permission. (In slow practices the target will not be lowered at all until the officer is in front of it. In rapid practices the target will be lowered to "half-mast" at the end of the time allowed, and the markers ordered to stand as far back as possible until the officer is in front of it.)
- vi. To cause all targets to be lowered during cessation of fire.
- vii. To regulate the exposure of targets according to the instructions laid down and to ensure that the "value of hit" is correctly signalled.
- viii. To check personally the target of each firer and enter the value of all hits in the register in ink; occasional shots will be entered in the columns provided for the purpose. No erasure is to be made. If alteration is necessary, a fine line will be drawn through the figure, the correct value written against it, and the amendment verified by the officer's initial.
- ix. If more hits, including ricochets, are found on a target than rounds fired, to deduct from the score the value of the highest scoring hits. Only those hits which are to count are to be entered on the register.

- x. To mark off each hit on the target, with a *red* pencil, before entering its value in the register, and to ensure that all shot holes are correctly patched.
- xi. In rapid practices, after each check, to cause the number of hits of each value to be signalled on each target; in snapshotting practices, the number of hits.
- xii. On the conclusion of a practice, to rule a line diagonally across the unused spaces in the register, before signing it.

9. Duties of officers superintending at the firing point.

- (a) It is not possible for an officer to superintend adequately more than four firers. In cases where companies or parties have been allotted more than four targets, additional officers in this proportion will be detailed to supervise classification or test practices for trained men.
- (b) The duties of the officer superintending at the firing point on a gallery range are:—
 - i. In classification practices for trained men to vary the order of firing before the commencement of each practice.
 - ii. To see that each man whose name is on his roll (*Army Form B 189*) fires at the target to which he has been detailed, and fires with the rifle which has been issued to him, except in the case of officers and others not issued with a rifle.
 - iii. To allow no one at the firing point but the officers, the instructors, and the men actually firing.

- iv. To ensure that the regulations and local orders are obeyed.
 - v. To detail a non-commissioned officer or man to send and receive messages on the telephone, or by signal, and a non-commissioned officer to superintend the issue of ammunition and collection of empty cases.
 - vi. During instructional practices to detail an instructor to superintend each man's firing. (*See Sec. 10.*)
 - vii. To see that no assistance by way of coaching or spotting is given to non-commissioned officers or men while firing the practices of Table R, Part IV; or Table L, Parts II and IV.
 - viii. To ensure that no more than the authorized amount of ammunition is expended.
 - ix. To collect and check the butt registers from the officers on butt duty. These registers will be handed in to the headquarters of the unit finding the supervising officer or to the office of the camp or station commandant, where they will be stamped and forwarded to the unit to which the firing party belongs.
 - x. To ensure so far as possible, by personal observation, that the marking in the butts is carried out in accordance with the regulations.
- #### 10. Regulations for non-gallery rifle ranges.
- i. On non-gallery rifle ranges the register (*Army Form B 190A*), on which all hits or misses will be at

once entered as signalled, will be kept at each firing point by a non-commissioned officer specially detailed for the purpose.

ii. Targets will only be checked on the completion of the rounds allotted in timed practices, after occasional shots, or when the number of hits renders marking difficult. The officer on butt duty will signal the warning to cease fire, examine targets, mark off all hits or ricochets, and enter their value on the memorandum (*Army Form B 67*) supplied for the purpose. He will then cause them to be signalled to the officer at the firing point (a marking disc showing the value of each series being placed on the target), who will compare them with the numbers recorded on the register, and enter the totals in the spaces provided for the purpose. The hits will then be patched.

iii. In other respects the regulations for gallery ranges will be observed.

11. **Responsibility for examination of weapons and ammunition carriers or bandoliers before leaving the firing point and range.**—The officer superintending at the firing point is responsible that the weapons are unloaded and that the men are not in possession of unauthorized ammunition. He will have an examination made to ensure that these points have been attended to before the firers leave the firing point. A further examination will be carried out by the officer commanding the company or party before the company or party leaves the range.

12. *Signalling and scoring.*

1. Signals between the butts and firing point will be made by means of a flag as follows:—

(The signaller, whether at the firing point or butts, will face the target.)

<i>Preparative</i>	...	...	Waved above the head.
Ready to receive	...	...	Held vertically above the head.
or send down.			
Tens	...	...	Lowered to signaller's right as many times as required.
Units	...	...	Lowered to signaller's left as many times as required.
No hits	...	...	Revolved two or three times from right to left.
<i>Wash (or patch) out</i>	...	...	Waved horizontally close to the ground.
<i>Practice finished</i>	...	...	Held upside down.
<i>Signal last shot</i>	...	...	Held horizontally above the head.

2. The following code is suggested as suitable for use on ranges where communication between the firing-point and butts is maintained by means of signals observed in reflecting mirrors or periscopes:—

(a) The signaller, provided with a large signalling flag, should take up his position exactly opposite to and facing the mirror. His signals would refer only to the four targets on which the party is firing, numbered from the right when facing the firing-point, irrespective of their numbers with reference to other targets on the range.

(b) Signals should be acknowledged from the butts by means of a small signalling flag raised behind the mirror.

No.	Flag Signals.	Their Significance.
1	"Preparative," followed by flag waved vertically up and down in front of the body	The practice is about to begin.
2	"Preparative," flag raised to full extent of right arm, and circled from left to right in front of the body	Occasional shots are about to be fired.
3	As for No. 2, followed by "wash out"	Occasional shots are finished.
4	As for No. 2, followed by signal for target	Occasional shots are about to be fired on No. target.
5	As for No. 4, followed by "wash out"	Occasional shots are finished on No. target.
6	Make the "preparative," and hold the flag vertically above the head to the full extent of the left arm. Then lower it to the left as follows:— For No. 1 target, once " No. 2 " twice " No. 3 " three times " No. 4 " four times	To call up a target.
7	As for No. 6, followed by "wash out"	Check No. target. NOTE.—To check all targets, hold the flag horizontally to the right, followed by "wash out." This signal can be repeated if it is necessary to re-examine.
8	"Preparative," followed by flag held upside down, with hunting spread out	The practice is finished.
9	As for No. 8, followed by flag circled above the head	Practice is concluded for the day.

3. In all open range practices, other than battle practices, targets (except in timed practices, when they will be brought to "half-mast") will only be lowered on a direct order from the officer on butt duty, but every shot from the firing-point will at once be signalled at the butts as a hit, ricochet or miss.

4. In *rapid practices*, the number of hits of each value will be signalled at the expiration of the time limit, after the targets have been checked.

5. In *snap-shooting practices*, the "value of hit" will be signalled after each shot. (*See para. 9 of this section.*)

6. In *slow practices*, when a target is struck, the centre of the marking disc will be placed over the shot hole and kept in position sufficiently long to enable the firer to see the position of his shot.

7. When a shot strikes the target so that the circumference of the mark cuts the outer edge of any ring or figure, it is to be counted as hitting within that ring or figure as the case may be. A *ricochet* usually makes a long, ragged hole or mark.

8. Rifle.—

i. For **Small** (4 feet) and **Large** (6 feet) targets :—

Signal.	Methods of Signalling.	Value of Hit.
		Points.
Bull's-eye. (<i>see</i> Note 1 below)	White disc placed on the shot hole	4*
Inner (inner circle)	Black disc waved twice across the face of the target, and placed on the shot hole*	3
Magpie (magpie circle)	Disc revolved in front of the target, and then placed on the shot hole	2
Outer (outer circle)	Black disc moved vertically up and down the left of the target, and then placed on the shot hole	1
Ricochet, miss, or remainder of target not within outer circle	Red and white flag shown on the same side as the direction of the miss. If the direction cannot be determined, the flag will be waved across the face of the target	Nil.

* NOTE 1.—In certain rapid practices specified in the various Tables, bull's-eyes and inners will count 3 points, and will be signalled as bull's-eyes. In these practices hits elsewhere on the target will count as in the above table.

ii. **Light automatic** :—

Normally the number of hits on the scoring surface of the target will be telephoned to the firing point. In the event of there being no telephone, tens will be signalled by putting the disc in front of the target and dropping it to the right, and units by dropping it to the left.

9. On **figure** targets and on large **snap-shooting** targets—

i. **Rifle** :—

Hit ...	...	...	The figure will be raised above the markers' gallery and twirled	3 points
Ricochet ...	...	...	As in para. 8 of this section	Nil.
Miss ...	...	...

ii. **Light automatic** :—

5 or more hits on the figure.	Figure raised and a bull's-eye signalled on it	Points 10
4 hits on the figure	Figure raised and an inner signalled on it	9
3 " " " "	Figure raised and a magpie signalled on it	8
2 " " " "	Figure raised and an outer signalled on it	7
1 hit " " " "	Figure raised and twirled	6

10. Where telephones are not provided, communication can best be maintained by means of a system of reflecting mirrors (*see* para. 2), which will enable the officer in the butts to observe signals, made according to a pre-arranged code, from the firing-point. Where neither telephones nor mirrors are available, bugle sounds must be utilized.

BATTLE PRACTICES—DEMONSTRATIONS WITH LIVE AMMUNITION—WEAPON TRAINING COMPETITIONS.

13. Battle practices—General.

1. **Standard of efficiency before beginning.**—In range practices soldiers and leaders should have attained the standard of skill in military marksmanship and light automatic handling indicated in Sec. 2.

The individual should have become thoroughly acquainted with the peculiarities of his own rifle and of the light automatic with which his section is armed. He should also have been trained in judging distance, in the use of ground and battle formations, as well as in the use of the bayonet, the H.E. grenade, and the smoke grenade.

2. **Object.**—The main object of battle practices is to exercise and give experience to individuals and fire units in the use of their weapons under conditions approximating as far as possible to those of the battlefield.

3. **Expenditure of ammunition allotted.**—Practice ammunition in peace time will always be limited; consequently, it is of importance that every round allotted to battle practices should be expended to teach some definite lesson.

Care and forethought are required in drawing up a programme of battle practices.

4. Ammunition allotted for battle practices is not to be used for any other purpose, even if a classification range only is available.

5. The number of rounds fired by the individual soldier with the rifle in one day in battle practices will vary according to the amount of ammunition available, the lessons to be brought out, and the range facilities, but it should not normally exceed 30. The number of rounds issued to the light automatic sections should be in proportion to those issued to rifle sections, and the expenditure controlled by the use of partially filled magazines.

6. In the course of battle practices, company, platoon and section commanders will be given practice in their duties of direction, control and observation of fire, in the use of ground and formations, and in mutual support so far as range facilities permit.

It must be recognised, however, that owing to the long range of the modern bullet, few areas exist in civilised countries where direct and enfilade fire can be employed simultaneously. Commanders must therefore exercise supervision during collective practices and ensure:—

(a) That the lessons taught on the battle practice range are in accordance with the tactical doctrine laid down in "Cavalry Training" or "Infantry Training."

(b) That due precautions for safety are taken. Thus it will often be necessary for platoons and sections to withhold fire after they have manoeuvred into a favourable position, and the angle at which fire is delivered must be carefully controlled.

7. It must be realised by all leaders that no scheme of battle practices, however carefully drawn up and carried out, can simulate in an exact degree the conditions that exist on any battlefield. The conditions of practices teaching the same principles should be varied in order to avoid set pieces.

8. Company commanders will keep records of battle practices carried out annually by the sections and platoons of their companies. Details of practices, schemes and results, should be recorded for use and comparison in subsequent years.

9. In view of the importance of executing battle practices at unknown ranges, general officers commanding-in-chief will, when classification ranges only are available, endeavour to hire suitable ground for these exercises under the Regulations for Engineer Services, and Volume III of this manual.

10. Whenever available, ranges or areas without firing points should be used, but if it is absolutely necessary to use classification ranges, practices should be performed on a flank if the extent of the danger area will admit. On the classification range the landscape should, if possible, be broken up by means of screens, brushwood or other contrivances so as to conceal the firing points and so introduce uncertainty as to distances.

11. The positions adopted by the firers and the siting of the weapons should conform to the requirements of the ground over which the practice is taking place.

12. **Targets and appliances.**—Mirrors or periscopes set up in the butts are of great use in enabling men and leaders to watch the action of attacking units and individuals from

the point of view of the enemy. Errors in the use of ground and formations can be fully appreciated.

13. Falling plates and collapsible targets are of great value in all battle practices, particularly in competitive practices.

14. Targets should conform in size, shape and colour to those likely to be met in battle. They should be disposed in formations that approximate to the formations used by a prospective enemy. Markers should be trained by rehearsal to handle these targets in a realistic manner.

15. Targets and appliances suitable for battle practice ranges are shown and explained in Volume III of this manual.

16. Battle practices should take place throughout the year.

17. Dress for battle practices will be fighting order.

14. Programme of battle practices.

1. The general programme of battle practices to be carried out throughout the year should be arranged by brigades and unit commanders as under, and the available ammunition should be allotted in accordance with existing range and other facilities.

- (a) Individual battle practices.
- (b) Section and platoon battle practices.
- (c) Company battle practices.
- (d) Demonstrations on the battle firing or classification range with tracer or Mark VII ammunition, mainly for the training of leaders, *e.g.*, application of fire, fire effect, vulnerability.
- (e) Combined battle practices (*i.e.*, co-operation with other weapons).

15. *Individual battle practices.*

1. Individual battle practices should be designed to produce, by practice, those qualities in military marksmanship that cannot be fostered under the necessarily more rigid and standardised conditions that exist on the classification range. Instruction in the following may be brought out with advantage during individual battle practices :—

- (a) Use of ground and cover, and movement by bounds.
- (b) Fire combined with movement.
- (c) Rapid adoption of suitable firing positions.
- (d) Alternate use of the bullet and bayonet, *i.e.*, close combat training.
- (e) Shooting at moving targets.
- (f) Use of the sniper rifle (with telescope attachment); bringing out the qualities of patience, vigilance, alertness.
- (g) Observation of fire (or spotting); bringing out mutual assistance.
- (h) Gas defensive measures.

2. The distances should not exceed 600 yards, except in countries where it is considered by the General Staff concerned that practice at longer ranges is advisable. Most of the available ammunition at home should be expended at distances between from 400 yards down to 50 yards, or less.

3. Each firer should be provided with a separate target and there should be adequate marking so that interest may be maintained.

4. Although men should fire as individuals or in pairs, the section organization should be retained.

5. Careful explanation should precede, and full discussion and criticism follow the practice, but whilst the practices are actually being carried out there should be no fire control or interference on the part of leaders except such as may be required in the interests of safety. Men should learn by their own mistakes and the mistakes of others.

6. Individual practices Nos. 1 to 4 given in Appendix IA are published merely as a guide to assist those responsible for the framing and conduct of individual battle practices in units. It is not intended that the conditions therein should necessarily be followed in detail.

16. *Section and platoon battle practices.*

1. Section and platoon battle practices are primarily intended to afford practice in their duties to fire unit leaders and to exercise the men in their duties within the section.

2. In framing a programme for section and platoon battle practices, attention must be paid to the amount of ammunition available. The fullest value of instruction will be obtained for the ammunition expended, if a company programme is framed and a series of tactical demonstrations are carried out by selected sections and platoons in the presence of the remainder.

As far as possible, company commanders should ensure that every fire unit commander and understudy is exercised in the direction and control of his fire unit, and that every man is practised in applying fire (rifle and light automatic) under the control of a leader, on varying ground, both in attack and defence.

3. Distances at which practices take place should vary from 800 yards at the furthest down to 50 yards or less.

4. Great value for the ammunition expended will often be obtained if a rehearsal takes place before the practice is actually carried out with live ammunition. Especially is this the case with inexperienced leaders and men.

5. Some of the lessons to be practised and brought out in section and platoon battle practices are as follows:—

- (a) Action of the sections within the compass of the platoon in attack, defence and retirement.
- (b) Fire discipline, control and direction—observation of fire.
- (c) Fire and movement—
 - i. As between the individual men within the section.
 - ii. As between two or more sections within the platoon.
 - iii. Movement by sections to take instant advantage of any opportunities created by tanks, artillery, smoke grenades, or by other sections or platoons.
- (d) Close combat fighting—a degree of control to be maintained as long as possible—quick re-forming for further advance or meeting a counter-attack.
- (e) Rapid opening and correct application of fire (distributed or concentrated) to meet emergencies, such as a counter-attack.
- (f) Action against a gas attack.

17. *Company battle practices.*

1. The instructions laid down in Section 16 for the conduct of section and platoon practices hold good generally in the case where range facilities allow company battle practices to be carried out.

2. In company battle practices, exercises and lessons which are the concern of the company commanders, should be brought out and emphasized, *see Infantry Training.*

3. In cases where the amount of practice ammunition available, and the limitation of range facilities, forbid the execution of complete schemes tracing an operation from start to finish, schemes should be so drawn up as to give instruction in some distinct phase of the combat as in the preceding paragraph.

18. *Demonstrations on the battle-practice range.*

1. As stated in the opening chapter of this manual, the system of training by demonstration is of the utmost value during all stages of training, both in the case of the individual and the leader and during collective training.

2. On the battle-practice range and classification range, tracer or Mark VII ammunition, dummy and smoke grenades may be used.

Such demonstrations, because more realistic and practical, will naturally impress the minds of the onlookers more deeply than the usual exercises carried out on the manœuvre ground where live ammunition cannot be employed. They are especially valuable in the training of the leader and the prospective leader.

3. Demonstrations such as the following should be given in every unit throughout the year:—

- (a) Trajectory of the bullet at various ranges.
- (b) Cones of fire—the rifle and light automatic
- (c) Effect of wind on the bullet.
- (d) Necessity for *sight* adjustment.

- (e) System of application of fire (concentration, distribution), by the platoon and the section.
- (f) Comparative tests of fire effect—the individual, the section, the platoon, the light automatic, the Vickers machine gun.
- (g) Vulnerability of various formations, as affected by direct, oblique or enfilade fire.
- (h) Length of beaten zone—effect of ground on the shape of beaten zone—in the case of the light automatic and rifle sections.
- (j) Penetration of the bullet into various substances which may be used as cover, such as trees, stones, sandbags, earth, walls, &c.
- (k) Demonstrations of a tactical nature, showing the individual, the section, and the platoon in attack, defence, and retirement.

Note.—(a) to (e) lend themselves to demonstrations with tracer ammunition.

19. Combined battle practices.

1. Combined battle practices are exercises, using live ammunition, designed to practise and illustrate the correct co-operation of all arms in battle, *see* Infantry Training, Vol. II. (1921), Chapter VI.

Such exercises must necessarily be of great training value, and G.O.Cs.-in-C. will make every effort to afford opportunity for such training.

2. In commands where the limitations of range accommodation prevent such training, officers and non-commissioned officers of Infantry and Cavalry should, as far as possible, be afforded opportunities of witnessing the action of other arms

and their methods of co-operation in battle, *e.g.*, tanks, artillery, aircraft.

20. Weapon training competitions.

1. Competition is the spice of training. All commanders must recognise the importance of the competitive element as an incentive and direct aid towards weapon training efficiency.

2. Weapon training meetings and all competitions towards which assistance is given directly or indirectly from public funds will be conducted in accordance with the spirit and training methods contained in this manual.

The aim of such competitions should be to mould and develop military opinion on the right lines and to induce practice in methods which will lead to increased efficiency on the battlefield.

3. As a general rule, conditions of competitions should be framed to induce a large number of officers, non-commissioned officers and men to compete rather than to bring out a few selected champions. Team competitions are of paramount importance. The attainment of a good average standard of proficiency in weapon training by a large number of men is infinitely more valuable than phenomenal skill developed by a few specially trained experts. Championships lend interest to a meeting but do not directly assist the object in view.

4. The conditions of any competition should be suited to the rank and experience of the competitors. In individual competitions, competitors should be divided into classes. Thus, for example, competitors may be conveniently divided into classes as follows:—

(a) Officers and Senior N.C.Os.

- (b) Sergeants and Corporals.
- (c) Soldiers, including Lance-Corporals.
- (d) Young soldiers (say, under 18 months' service);

or

- (a) Marksmen and first-class shots.
- (b) Second-class shots.
- (c) Third-class shots and recruits.

5. Even in competitions of an individual nature, the element of "Playing for the side," or "for the regiment," may be introduced with advantage. By thus appealing to the *esprit de corps* of the competitors, a further incentive to effort will be produced. Thus, for example, in a competition involving an aggregate at several ranges, regiments and battalions might be brought into competition by each being allowed to count the scores of the first 10 or 20 of their members taking part in the competition. Thus a large number of men would be competing for the honour of their respective regiments.

6. The conditions as regards numbers for all team competitions should be based on the existing organisation of cavalry, infantry, Royal Engineer and other services and the actual strength of units. It is important to guard against "the packing" of teams.

7. Programmes should, as far as possible, embrace all weapons, and conditions should include all the elements of weapon training. For the definition of military marksmanship (see Sec. 2). Programmes should be published early in the season, so that time may be given for practice and elimination.

8. Competitions involving the correct application of tactical methods are well suited for command, divisional,

brigade or battalion meetings and are of great value. Such competitions encourage close study of, and practice in, this subject by junior leaders. Typical competitions would be for troops or platoons in attack, defence or retirement, involving the correct use of the various weapons, and of ground and formations.

9. In competitions of a service nature, competitors should be allowed to fire only with a weapon on charge of their unit. No departure from the regulations governing such considerations as the painting of sights, sighting shots, use of slings, provision of wind flags, targets, high power telescopes, rifle accessories, &c., is to be permitted in weapon training competitions.

10. Prizes should be in kind rather than money, and the aim should be to have as many as possible, rather than a few expensive individual prizes.

BADGES, PRIZES, REPORTS, RETURNS AND RECORDS.

21. Badges.

The following badges will be issued for good shooting with the rifle and the light automatic :—

1. Badges for combined rifle and light automatic shooting—

(a) Best combined rifle and light automatic shot in each Squadron or Company.—*Star and crossed rifles.*

Issuable annually to the N.C.O. or man in the squadron or company who has made the best aggregate scores in Table L, Parts II and IV. Casuals or men attached from other companies or units are not eligible.

(b) **Best combined rifle and light automatic shot among W.Os., Class II, Serjeants and Lance-serjeants in the Regiment or Battalion.**—*Crown and crossed rifles in wreath.*

Issuable annually to the best shot among the W.Os., Class II, serjeants and lance-serjeants of a regiment or battalion in Table L, Parts II and IV.

(c) **Best combined rifle and light automatic shot among the Corporals and Privates in the Regiment or Battalion.**—*Star and crossed rifles in wreath.*

Issuable annually to the best shot among the corporals lance-corporals and privates of a regiment or battalion in Table L, Parts II and IV

(d) **Troop Serjeants and Section Commanders of the best shooting Cavalry Squadron, or Platoon Serjeants and Section Commanders of the best shooting Infantry Company.**—*Crown and crossed rifles.*

This badge will be awarded to (i) troop serjeants and section commanders in the best shooting squadron of a Cavalry regiment; (ii) platoon serjeants and section commanders in the best shooting company in an Infantry battalion.

For a non-commissioned officer to be awarded this badge he must have been exercised in Table L during the Weapon Training year with his squadron or company.

2. Badge for good shooting with rifle.

Rifle marksmen.—*Crossed rifles.* Issuable to soldiers below the rank of warrant officer, of the Cavalry, Royal Engineers (field squadrons, companies and battalions) and Infantry of the Regular Army, who qualify as rifle marksmen in the annual rifle test, Table R, Part IV, or Table L, Part IV.

3. Badges for good shooting with light automatic.

Hotchkiss or Lewis gun.—*"L.G." in wreath.* This badge will be awarded to those classified as 1st class Lewis or Hotchkiss gunners in Part II, Table L.

4. Badges, how worn. (See Clothing Regulations.)

5. The names of all entitled to good shooting badges will be published in regimental orders.

6. Badges for good shooting will be issued as soon as possible after they have been won.

7. Ties will be decided by the Commanding Officer.

8. Trained men at Depots may wear, during their tour of duty, the individual good shooting badges they won when they last fired with their units.

22. Prizes.

1. The grants allowed by the Royal Warrant for pay, &c., for issue as weapon training prizes to NON-EUROPEAN units of ENGINEERS and INFANTRY in which Proficiency Pay is not admissible will be awarded as follows:—

- i. Grant (a) will be drawn for all recruits (except officers) who complete Table "A," and will be

awarded to the best shots of each party as the commanding officer may deem desirable.

- ii. Grant (b) will be drawn for all ranks (except officers and warrant officers) who have completed the classification or qualification practices prescribed for trained soldiers. It will be awarded in accordance with a scheme which will be prepared by the Commanding Officer at the commencement of the Weapon Training year, and submitted for the approval of the General Officer Commanding.
 - iii. All those in respect of whom money is drawn will be eligible to receive prizes, but serjeants should compete separately, and not with the rank and file.
 - iv. As soon as a company has completed the classification practice *Army Form O 1716* will be prepared, in triplicate, and forwarded for the approval of the General Officer Commanding. When approved, two copies will be returned to the unit, one for retention and the other for transmission with the pay list in which the prizes are charged against the public.
 - v. Similar procedure will be followed in regard to parties of recruits.
2. The awards will be notified in orders.
 3. In regard to the forfeiture of prizes, *see* Royal Warrant for Pay, &c.
 4. The General Officer Commanding is authorised to decide in respect to the issue of prizes in cases in which he may consider their issue unmerited.

23. Metal funds.

1. A fund formed from the sale of metal recovered from rifle ranges will be established in each command.
2. The metal will be disposed of to the best advantage under the orders of the General Officers Commanding-in-Chief, due regard being paid to the Woolwich half-yearly price list for old metal. In the case of stations abroad the metal may under certain circumstances be returned to Woolwich for disposal (*see* Regulations for Army Ordnance Services, Part I).
3. The collection of metal from the butts is the duty of range wardens, who should, in order to ensure that none is lost, pick the stop butts daily, immediately after the cessation of fire, and lodge the metal in a place of safety. Troops will only be employed in this connection when it becomes necessary to reface the butts.
4. In the case of ranges in barracks, metal will be collected under regimental arrangements, and disposed of as may be directed by the General Officer Commanding-in-Chief.
5. After payment of any necessary expenses connected with the prevention of theft of metal, &c., the sums realised will be allotted by General Officers Commanding-in-Chief for such purposes as prizes and payment of markers at rifle meetings.
6. Should the sums accruing from the sales exceed the foregoing demands, General Officers Commanding-in-Chief are authorised to expend any surplus on the preparation of ground for battle practices, battle firing, and other aids to weapon training for which funds are not otherwise provided.

but not on the purchase of ammunition; the money so expended will be shown on *Army Form N 1472*.

7. *Army Form N 1472* will be completed at the end of each financial year and rendered to the local auditor attached to the command, or, in the case of commands in which there is no local auditor, to the assistant financial secretary, War Office.

24. Returns, &c., general remarks.

1. The following returns are to be used for recording weapon training performances. Records and diaries of collective battle practices and *Army Books* 90, 100, 107 and 218 will be retained until out of date. The Regimental, Company and Recruits' Annual Returns and records of all tests should be retained for three years; General Officers Commanding may authorise the destruction of all others, including *Army Form B 186*, after the conclusion of the Weapon Training year.

25. Returns—Regular Army.

1. **Recruits weapon training return.** *Army Form B 188* for use by units whose recruits fire **Table A**.

How compiled.

- i. The names of the men will be entered on this return in order of sections on the day on which a party of recruits commences the practices of **Table A**. Scores will be entered daily.
- ii. A line will be drawn across the return to separate one party from another.

When and how completed.

- iii. At the end of the Weapon Training year the summary will be completed and the return signed.

The total points made by all the parties exercised in Part III will be added together, and the average individual score found, for record in the Regimental Annual Return.

2. Company annual returns.

- (a) *Army Form B 192*. For use by units whose personnel fire **Tables R & L**, and all Regular R.E. units.
- (b) *Army Form B 192A*. For use by Regular units whose personnel fire **Table T**.

How compiled.

- i. The name of every officer, warrant officer, non-commissioned officer and trained soldier borne on its strength will be entered on the day on which a company commences the range practices of **Tables R, L, or T**; officers first, other ranks by sections, and after these the names of all, including men exempt, who for any reason are not being trained with the company.
- ii. The records of each individual's score will only be kept in the case of Classification or Qualifying Test Practices and will be entered from the registers as soon as these are received from the Superintending Officer, *i.e.*, **Table R, Part IV**; **Table L, Parts II and IV**; **Table T, Parts I or II**. In all other cases only the number of rounds

fired in each Part or repetition of certain Parts will be recorded.

N.B.—Special rules for compiling *Army Form B 192A* are printed on the Form.

Transfers.

- iii. The performances of men who are transferred from one company to another in the same unit, or to another unit after the completion of the annual Test (*Table R, Parts IV; Table L, Part II and IV; or Table T, Parts I or II*), will be retained, for record, in the return of the company by which they were exercised; those of men who have not completed the Test will be ruled out of the return of the company giving, and entered in that of the company receiving the transfer.
- iv. The performances of casualties of the company and of partially exercised men transferred to the company will be entered as soon as transfer returns are received.

Corrections from Firing Point registers and butt memos.

- v. When the register is kept at the firing point on non-gallery ranges and a memorandum at the butts, the necessary additions and deductions will be made before the company average is struck.
- vi. Immediately after the end of the Weapon Training year the return will be totalled and fully completed.

When and how completed.

- vii. The blank columns against the names of partly exercised and non-exercised men will be ruled through, and the reason for the men not being fully exercised noted in the column for remarks.
- viii. Each man will be classified on the day he completes the annual Test (*Table R, Part IV; Table L, Parts II and IV; or Table T, Parts I or II*), or, if for any reason he fails to complete these tests, then on the last day of the Weapon Training year.

3. Regimental annual return.

Army Form B 187. For use by all units of the Regular Army.

Compilation, when and to whom rendered.

- i. These returns will be prepared from the Company and Recruits' returns, *Army Forms B 192 and B 188; or B 192A.*
- ii. It will be sent through the usual channel within 14 days of the conclusion of the Weapon Training year, in triplicate, to the General Officer Commanding-in-Chief, who will enter his remarks, send one copy to the Commandant, Small Arms School, Hythe, return one to the unit, and retain one.
- iii. When a unit is removed from one Command to another at home after completion of its annual course of weapon training (that is, excluding casualties or small parties), the return will be submitted to the Brigade and Divisional commanders and the General Officer Commanding-in-Chief under whom the course was carried out.

iv. The Commanding Officer will note in this return full particulars of any variations in the courses sanctioned under Sec. 1, 2.

v. Detachments (and units not quartered in a station with other units of their corps) of the R.H.A., R.F.A., R.G.A., R.E., R.A.S.C., R.A.O.C., R.A.V.C., will render returns on *Army Form B 187*. Where several batteries or companies are stationed together, one return may be rendered for a brigade or for such groups of units as General Officers, Commanding-in-Chief may direct.

Brigade Commander's remarks.

vi. Brigade commanders will submit, on these returns, reports on the training of individual units, based on inspection and on the results of firing conducted under classification and battle practice conditions. The following points should be specially referred to :—

(a) The individual efficiency of the men as shown by their firing and independent action during the classification practices and individual battle practices.

(b) The proficiency of officers and non-commissioned officers in judging distance, as well as their instructional capacity. Their general weapon training efficiency will be judged by the conduct and results of collective battle practices, fired under conditions approximating to those of active service.

(c) The ability of the officers to give weapon training its full tactical significance, as indicated by their methods of instruction, lectures, and practical demonstrations of fire power.

4. Annual Report by G.Os.C.-in-C.

i. At home stations General Officers Commanding-in-Chief will render to the Commandant, Small Arms School, Hythe, for submission to the Army Council, by the 1st December each year, separate reports, in narrative form, on the small arms weapon training of the units of the Regular Army, Militia and Territorial Army in their commands, together with the regimental annual returns.

ii. In these reports they will draw special attention to any circumstances which have debarred units from compliance with the regulations for effective weapon training. They will mention units in which the training has not come up to the required standard, stating the directions they have given to ensure its attainment. Recommendations regarding matters which cannot be decided locally will be made on a separate sheet at the end of the report on each branch of the service.

iii. Reports and returns from India and other stations abroad will be submitted as soon as possible after the conclusion of the Weapon Training year.

26. Returns—Territorial Army.

1. Squadron, Battery or Company Annual Weapon Training Return. *Army Form E 552*.

i. This form will be used for recruits and trained soldiers.

ii. Special instructions for compiling the return are printed on the form, but the instructions in Section 169, para. 2, should also be studied and followed where applicable.

2. Regimental Weapon Training Return. *Army Form E 569.*

This return is compiled from the company annual returns. *Army Form E 552.*

It will be rendered in duplicate within one month after the close of the weapon training year through Brigade Commander to Divisional Commander, C.R.G.A., or C.E., who will insert his remarks, return one copy to unit and retain the other for three years.

The Commandant, Small Arms School, Hythe, is empowered to call for all or any of these returns. They will not be sent to him unless so called for.

3. Divisional Weapon Training Return. *Army Form E 567.*

To be compiled from *Army Form E 569* above by Divisional Commanders, C.R.G.A. and C.E., in triplicate, with report on back of the form to G.O.C.-in-C. Command; who, after adding his remarks, will return one to the Division, C.R.G.A., or C.E., send one to Commandant, Small Arms School, Hythe, and retain one. This form will be sent to Command Headquarters within six weeks of the close of the Weapon Training year.

27. Returns—O.T.C.

1. O.T.C. contingents will use the **T.A. Returns** in all cases unless the whole course is fired on the miniature range, when *Army Form E 561* "Contingent Annual Weapon Training Return" will be used.

28. Diaries of ammunition expended (all arms).

1. A record for each day firing takes place will be kept by each company commander, and weapon training instructor in the Regular Army, Militia and Territorial Army, of all ammunition expended under the various headings and the ammunition account in the company annual return will be compiled from it.

2. These records will be called for and examined by accountants from time to time and will also be inspected by C.Os. when striking off ammunition as expended.

3. These records will be kept in the following *Army Books*:
A.B. 99. Company Commander's Diary of Ammunition Expended.

For use in units who fire Tables R and L and Regular units who fire Table T.

A.B. 100. Diary of Ammunition Expended by Recruits.

For use in those units in which the recruits fire Table A.

A.B. 218. Adjutants' and Squadron, Battery or Company Commanders' Diary of Ammunition Expended T.A.

For use by all units in Territorial Army.

4. These books will be retained until out of date.

29. Record of battle practices.

A complete record (in manuscript or type) of all battle practices fired will be kept with the registers by company commanders and will be inspected periodically by C.Os.

These records should be kept for three years and should be studied when framing practices for the current year.

30. *Transfer return (all arms).*

1. **Weapon Training Transfer Return.** *Army Form B 193.*

- i. This form will be used in all cases of transfer, and to transmit the performances of casuals and of recruits to their company commanders; the registers recording the performance of a casual will be retained in the company exercising him.
- ii. In the case of men who have not commenced the annual course at the date of transfer, the words "recruit (or trained soldier), not exercised," will be inserted in the column for remarks.
- iii. In all other cases the return will show fully the practices performed and scores obtained in classification or qualifying practices.
- iv. In the case of the transfer of a trained soldier any further information regarding the soldier's weapon training capabilities that will assist his new company commander will be inserted in the remarks column, *e.g.*, "category R or L," as and when applicable, "in A.A. light automatic team," &c.

31. *Registers (all arms).*

1. **Register of Judging Distance Tests.** *Army Form B 186.*

For use at quarterly judging distance tests. Instructions for compilation are printed on the form.

2. **Company Commander's Roll for Range Practices.** *Army Form B 189.* Rifle, light automatic and revolver. (For gallery rifle ranges—to be kept at the firing point.)

- i. This form will be used for all open range practices of Tables A, R, L or T and for the Revolver Course.
- ii. Names will be entered in order of sections before going to the range, but the order of firing will not be inserted until men are detailed to shoot.
- iii. Occasional shots will be recorded on the back of the form.
- iv. Should a practice be broken off, the company commander will rule out the names of those who have not fired, and fresh forms will be used when the practice is completed.
- v. The roll will be signed at the firing point.

3. **Butt Register for Rifle and Revolver Practices (Gallery Range).** *Army Form B 190.*

- i. This form will be used on gallery rifle ranges in conjunction with *Army Form B 189* (para. 2 above) for all open range practices for the rifle in Tables A, R, L or T and for the Revolver Course.
- ii. It will be kept by the officers on duty in the butts, in accordance with the instructions in Section 155, para. 8.
- iii. On the conclusion of the practice a line will be ruled diagonally across the unused spaces, the form will be signed and handed to the officer superintending at the firing point, who will attach it to his roll.
- iv. The register will be the record of the scores obtained.

4. Firing Point Register for Non-gallery Ranges (30 yards and open). Army Form B 190A.

(a) This form will be used :—

- i. On non-gallery ranges.
- ii. By the Territorial Army, at the discretion of the Brigade Commander, when it is not possible to arrange for the method under which the Register is kept in the butts.

In both the above cases the regulations in Sec. 11, 10, will be complied with.

iii. On 30 yards ranges. In this case no other record will be kept (except such as C.Os. and company commanders require for their own information) and the regulations in Sec. 11, 10, will be modified to suit the local conditions.

(b) This form will be used for recording the scores made in the practices of Table A fired on the 30 yards range.

5. Butt Register for Light Automatic Practices. Army Form B 190B.

For use in the butts, under the same conditions as for Army Form B 190, and is used for light automatic practices in conjunction with Army Form B 189.

6. Butt memorandum—Non-gallery range. Army Form B 67.

To be used in conjunction with Army Form B 190A (para. 4 above), in accordance with regulations in Sec. 11, para. 10, on an open range. Not normally required on a 30 yards' range.

7. Register for collective battle practices. Army Form B 62.

This register will be completed as soon as possible after return to barracks, and will be produced by company commanders for inspection when called for.

Extracts will be made as considered desirable by C.Os. for entry in Battalion Orders and in the battalion permanent record of collective battle practices.

32. Vickers machine gun returns, &c.

M.G. Firing Point Register—Army Form B 2050.

This form is used as a register at the firing point for machine gun practices.

Machine Gun Butt Register—Army Form B 2050A.

This is the butt register used in conjunction with Army Form B 2050.

M.G. Officers Ammunition Book—Army Book 107.

This book contains a record of the ammunition expended on machine gun practice.

Annual Machine Gun Course Return (Regulars)—Army Form B 192M.

This form contains the record of the year's training and performances.

Annual Machine Gun Course Return (Territorial Army)—Army Form E 570.

This form contains the record of the year's training and performances.

33. Royal Tank Corps.

Royal Tank Corps (Regular and Territorial) Regimental Weapon Training Return—Army Form B 191.

CHAPTER II.

GRENADÉ TRAINING.

34. Definitions

Blind.—A live grenade which, for some reason, has failed to explode when thrown or fired.

Bomber.—A soldier trained in the use of the grenade.

Fragmentation.—The breaking up of a grenade into small pieces on explosion.

Grenade.—The weapon used by the bomber. It may be:—

- (1) A high explosive grenade intended to kill or incapacitate the enemy.
- (2) A smoke grenade intended, primarily, to form a smoke screen, or artificial cover.
- (3) A signal grenade.

High Explosive.—Guncotton and T.N.T. are examples of a high explosive. They are extremely violent in action when fired in a particular way, i.e., by means of a detonator. High explosives are used when a shattering effect is desired; they cannot therefore be used as propellants.

Premature.—A grenade which explodes before the proper time.

Priming.—The operation of fitting a grenade with a detonator, &c. A grenade so fitted is said to be primed.

Segmentation.—The cross-grooving of the bodies of certain grenades to induce the formation of fragments of a certain size on explosion.

GENERAL INSTRUCTIONS FOR TRAINING.

35. General characteristics of grenades.

The grenade is an auxiliary weapon to the bullet and bayonet; it should never be used when it is possible to employ either of these other weapons effectively.

1. *Relatively short range.*—This means that grenades can only be employed within close rifle and machine gun range; the utmost use of cover by the bomber is therefore of vital importance.

2. *Steep angle of descent.*—This property gives to grenades a very great searching power: they can reach an enemy behind cover or in a trench when the bullet cannot do so owing to the flatness of its trajectory.

3. *Relatively great weight.*—This means that a small number only can be carried by the soldier. They must be used sparingly and never when the same result can be obtained by the bullet. This limitation of the number of grenades carried must be balanced by a high degree of training of the bombers so that every grenade used may be effective.

4. *Danger area.*—A grenade bursting on flat ground has a danger area extending in all directions from the point of burst up to a certain limit depending upon the type of grenade. This must be taken into consideration in order to avoid injury to one's own troops. The larger fragments may wound up to a distance of 100 yards or more, but the chances of being hit at a distance of 20 yards or over are very small. The danger area may be greater if the grenade is burst on loose stones, &c.

36. General principles of the employment of grenades.

See Infantry Training, Vol. II, 1921, Secs. 10 (III), 11, 12 and 13.

1. The high explosive grenade is intended for use against an enemy behind cover, either to destroy him or to drive him into the open where he can be dealt with by the bullet.

It depends for its effect upon its killing power and to obtain this effect it must be burst on or close to the target. This means that the grenade must not be used unless the thrower or firer is within range of the target.

2. The smoke grenade is used, primarily, to screen movement; this screen may be effective although the grenade bursts 200 yards short of the target. This fact gives much greater scope than is possible in the case of high explosive grenades, provided that the strength and direction of the wind are not unfavourable to the use of smoke.

3. The smoke grenade when burst on or over the target possesses the power of inflicting severe injury by burning although it does not kill outright. The moral and even the material effect of smoke grenades so used may possibly be as great as that of the high explosive grenade. One or two smoke grenades skilfully burst may render a particular area untenable or at least cause considerable disorganisation in the efforts to extinguish the flames.

4. When used to inflict injury their use is subject to the same limitations as regards range as in the case of the high explosive grenade.

5. The incendiary effect of smoke grenades upon wood-work, &c., is considerable: if used for clearing dug-outs or

shelters constructed with inflammable material the resulting fire may cause their collapse; this must be taken into account when it is possible that the hostile position may have to be occupied by our own troops.

6. The use of smoke grenades is affected very greatly by the strength and direction of the wind and to a certain extent by other atmospheric conditions. The greater the strength of the wind the more quickly will the smoke cloud be dissipated and the greater will be the expenditure of grenades required to maintain the screen; this must always be considered when employing smoke.

7. The strength and direction of the wind again affect the choice of the point at which to burst the smoke grenades in order to allow for the drifting of the cloud across or over the target. Training and experience alone can help the bombers in the choice of this point.

8. In addition to the effect of the wind upon the smoke cloud there is also the effect upon the grenade while in flight. This effect is considerable with all types of grenade both as regards deflection and increase or decrease of range; bombers must therefore be trained to make the necessary allowances.

The amount of these allowances depends, to an extent, upon the type of grenade and again experience must be the chief guide.

9. The effect of the wind upon H.E. or smoke grenades while in flight must be considered when overhead fire is in question; with or without the personal errors of the bomber, such as wrong estimation of distance, inaccurate range

setting, wrong angle of elevation and unsteady nerves, it may be the cause of dangerous inaccuracies. Overhead fire with grenades incurs considerable risk and should only be employed in case of necessity. Although a high degree of training reduces this risk, it can never be entirely absent.

10. The direction of wind most favourable to the use of smoke is one blowing across the target. A wind blowing directly towards the target results in a deep but narrow cloud and may require a greater number of grenades to cover the front; the effect lasts longer however. A cross wind may enable the front to be screened by a single grenade but the cloud will be shallow and may be quickly blown away.

11. A wind blowing towards the firer is generally unfavourable. The firer is to a certain extent blinded by his own cloud, and when it has blown past may find himself silhouetted against a white background.

12. The most favourable position for a smoke screen is immediately in front of the point to be blinded; the area of ground concealed from the enemy is then greatest. For this reason smoke grenades should always be fired in preference to being thrown by hand. A cloud of small extent placed close in front of the troops to be screened—as would be the case with a grenade thrown by hand—is not necessarily effective, as the enemy has only to fire along the ground line of the cloud to obtain, at least, a moral effect against the troops behind it.

13. The principle of mutual support should be applied in the case of grenades as with other weapons, taking into account its special characteristics. The use of smoke grenades

can be combined with fire. It may frequently be possible for one unit to assist another to get forward by interposing a smoke screen between them and the enemy. If this screen is put down on a flank the unit may at the same time maintain rifle or light automatic fire on the unscreened enemy.

14. It is essential, once a smoke screen has been put down, that every unit in a position to do so should take immediate advantage of it to get forward: opportunities in battle are fleeting and must be instantly seized.

15. In addition to screening a front, smoke grenades may be used to mask the flank or flanks of a small operation but unless this operation is of short duration special supplies of grenades may be necessary.

16. Before a unit employs smoke, it should be considered whether there is a danger of its being a hindrance rather than an aid to neighbouring troops.

17. For clearing trenches, dug-outs, &c., grenades are of the greatest assistance. In operations of this nature it may sometimes be necessary to throw them by hand.

18. The grenade is primarily a weapon of the attack (including the counter-attack); its uses in the passive defence are limited. High explosive grenades may be used against an enemy who has taken cover in some piece of ground dead to rifle or machine gun fire; they should never be used against troops advancing in the open. The bullet is much more effective. Smoke grenades are generally unsuitable for use by a defender except to cover a counter-attack or a withdrawal; under other circumstances they are likely to assist the assailant rather than the defender.

37. *System of training.*

1. The system of training is similar to that employed for the rifle. The basis of it is demonstration and, where mechanism is concerned, reasoning.

2. In the handling of the weapon the degree of training must be such that all the essential movements are carried out instinctively under all conditions. If this standard is not reached, it is certain that essential points will be forgotten in the distraction of battle. Mistakes will occur, such as throwing or firing without removing the safety pin, firing without having loaded the grenade, omitting to set the range which involves danger to the firer and his comrades.

3. Throughout training the instructor must constantly bear in mind the characteristics of the weapon and the ultimate object of training—its use in war; he must not do or allow to be done anything which would be impossible on service.

38. *Sequence of training.*

1. In evolving a programme of training it is necessary to lay down a certain natural sequence of lessons which must be followed. Each lesson must lead up to, and form a foundation for, the lessons which follow, so that training may be progressive.

2. The following sequence may be taken as a guide to the order in which the lessons should be taught:—

- (1) The H.E. grenade, its uses, construction, precautions.
- (2) Throwing.
- (3) The grenade discharger.
- (4) The firing positions.
- (5) The smoke grenades.

- (6) Changing from rifleman to rifle-bomber, &c.
- (7) Firing dummy grenades.
- (8) Signal grenades.
- (9) Points before throwing and firing live grenades.
- (10) Live practice.

TRAINING IN THROWING AND FIRING.

39. *Throwing.*

1. Grenades over 1 lb. in weight cannot be thrown—in the strict sense of the word—by the average man; it is necessary to use an overarm bowling action.

2. The characteristics of the grenade require it to be thrown at a high angle in order to give a correspondingly steep angle of descent and (in the case of *time fuze* grenades) to allow time for the *fuze* to burn. The maximum range will also be reached when the angle of throw is 45° , assuming that the grenade is thrown with full force. Training grounds should be so arranged that the recruit is compelled to throw high, the high wire is a device for this purpose.

3. For the elementary stages of instruction the standing position is the most convenient and easiest for the recruit. It is the normal position when throwing from a wide trench or from behind high cover.

4. For throwing from behind low cover, from a shell hole, or in the open, the lying position is taught.

The Standing Position.

5. *Holding the grenade* (No. 36).—Hold the grenade *base* downwards so that the *lever* lies under the base of the fingers; the thumb just below the *filling screw* and the whole hand gripping the grenade firmly. For a right-handed thrower

the *ring* of the *safety pin* will then be in a suitable position to be grasped by the left forefinger; a left-handed thrower should be taught to withdraw and reinsert his *pin* from the opposite side when preparing his grenades for use. The detail given in the succeeding paragraphs applies to a right-handed thrower; a left-handed man should read "left" for "right" and "right" for "left."

6. *Throwing.*—

- i. Face the target; turn to the right and advance the left foot a full pace straight towards the target. (The individual must find his own best position; the essential points are firm balance and freedom from constraint.)
- ii. Grasping the grenade as in para. 5, place the first or second finger of the disengaged hand through the *ring* of the *safety pin*; raise the grenade to a position close to the right hip, back of the right hand uppermost (see Plate 81.).
- iii. Keeping the left arm rigid and close to the body, withdraw the pin by thrusting the right hand, holding the grenade, downwards and backwards. Glance at the *shoulders* of the grenade to see that the whole *pin* has been removed. Retain the loose *pin* until the grenade has been thrown.
- iv. Extend the left arm in the direction of the target, taking care not to raise it above the level of the cover.
- v. Keeping the head turned towards the target, throw the grenade with an overarm bowling motion, and observe the throw. Balance must be maintained. (See Plate 82.)

PLATE 81.



HAND GRENADE—PREPARING TO THROW.

PLATE 82.



HAND GRENADE—THROWING.

7. It must be remembered that throwing is instinctive in spite of all rules that may be formulated; the foregoing detail is only intended to mould this instinct to meet the special requirements of grenade throwing; practice is the essential factor.

NOTES FOR INSTRUCTORS.

1. *Bad direction* in throwing may be due to:—

- (a) Not keeping the head and eyes on or towards the target.
- (b) Wrong position of the body in relation to the target; for example, a tendency to throw consistently to one side may be corrected by making the recruit point his left leg a certain distance to the other side of the target instead of directly towards it.
- (c) A “round arm” instead of an “overarm” movement.

2. *Low throwing* may be due to a natural tendency to throw directly at the target; it may be corrected by telling the recruit to throw at an imaginary point well above the target.

The Lying Position.

8.—i. The thrower lies face downwards, directly towards the target, grasping the grenade in the right hand as in the standing position; first or second finger of the left hand through the ring, both hands close under the chin, elbows outward and chest close to the ground.

ii. Draw the *pin* by thrusting the right hand away from the left.

iii. Bring the hands to a natural position for pressing up, retaining the loose *pin* on the finger.

iv. Pressing upwards with both hands—the right grasping the grenade firmly—raise the body on to the left knee, allowing the right foot to slide backwards and slightly bending the knee if desired. The left knee must not change its position.

v. Extend the left arm in line with the shoulder and lean back as far as possible, right arm to the rear and the whole body braced for throwing. (See Plate 83.)

PLATE 83.



HAND GRENADE—THROWING.

vi. Throw the grenade with an overarm movement as when standing; straighten the right knee and, allowing the body to fall forward, lie down again in one movement, breaking the fall with the hands.

NOTES FOR INSTRUCTORS.

The causes of bad throwing are similar to those in the standing position. The position as described must be modified where space is restricted or where the cover favours a modified position; for example, the height of the available cover may admit of throwing being carried out from the position on the knee. The principle, however, remains the same.

Loosening Exercises.

9. These exercises are primarily for the purpose of developing freedom and suppleness of the muscles used in grenade throwing. They are also of value in teaching the sequence of movements in throwing.

The whole class should work together, first by numbers and then in their own time on the word "throw." As a warning or preparatory order the word "ready" may be used; the class then adopt the position as in para. 6 (i) or 8 (i) for throwing, but without using grenades. Except that grenades are not used, the movements are exactly the same as in throwing. On completion of the throw the class return at once to the ready position and likewise after each subsequent throw until the command "rest" is given. Loosening exercises may be carried out at any time and on any suitable piece of ground. They form an essential part of the first throwing lesson. If the full benefit is to be obtained from the exercises they must be carried out with energy.

10. Precautions when throwing dummy grenades.

- (a) Not more than one man is to throw at the same moment.
- (b) No man is to throw without an order.
- (c) Grenades are never to be thrown from man to man.
- (d) No attempt is to be made to catch a grenade.
- (e) When throwing from the various distance circles over the high wire, the throwers should be arranged "in echelon" so that those behind do not endanger those in front.

NOTES FOR INSTRUCTORS.**Sequence of Throwing Lessons.**

- I.—High wire ... To teach the high throw. (See Plate 84.)
- II.—Shellholes ... Practice against a service target. (See Plate 85.)
- III.—Cone ... Practice to develop accuracy and range combined with a high throw. (See Plate 85.)
- IV.—Cage ... Practice to develop accuracy, range and direction with a high throw when throwing from cover. (See Plate 86.)
- V.—Lying... .. Practice when lying. (See Plate 86.)

PLATE 84.

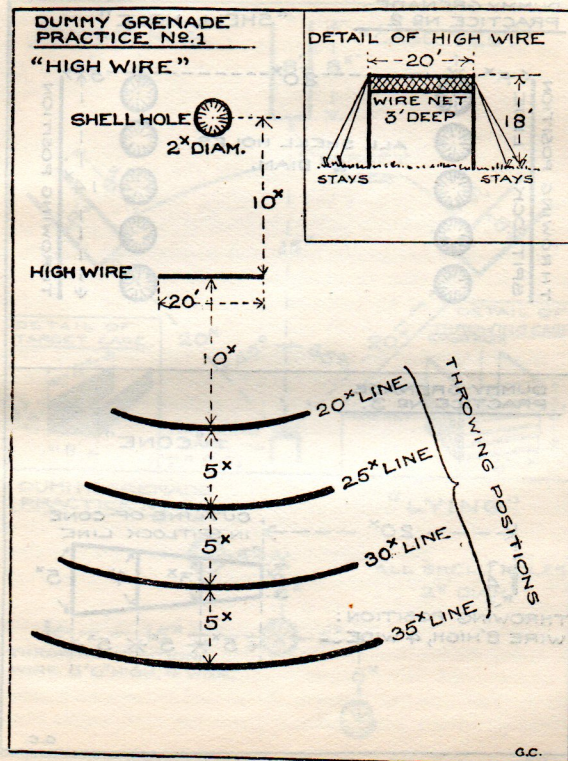


PLATE 85.

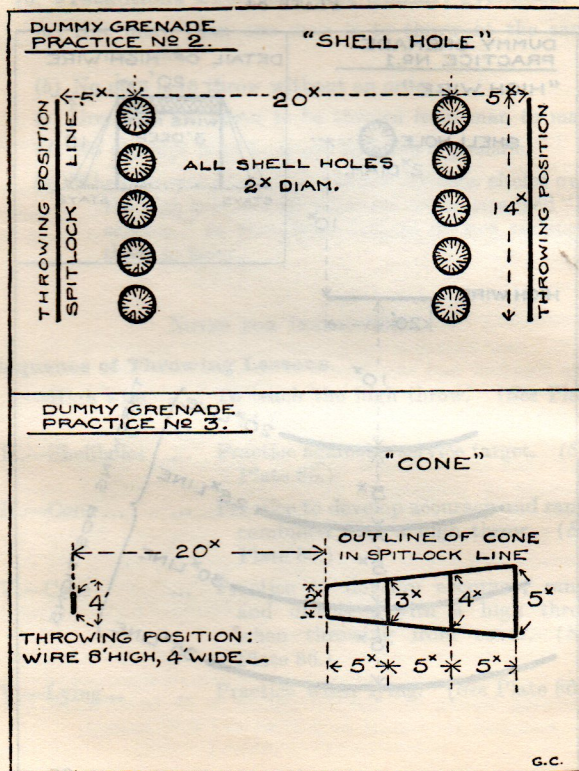
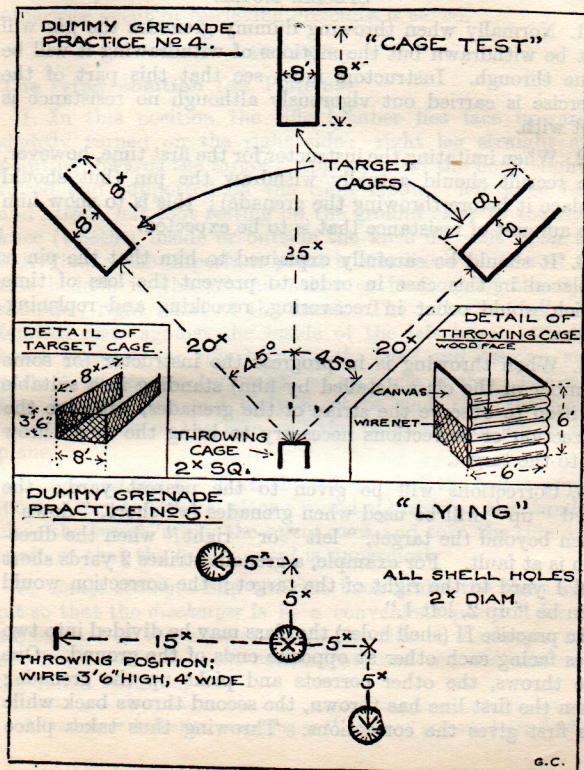


PLATE 86.



SPECIAL NOTES.

1. Normally when throwing dummy grenades the *pin* will not be withdrawn but the motions of withdrawing it will be gone through. Instructors must see that this part of the exercise is carried out vigorously although no resistance is met with.

2. When imitating the instructor for the first time, however, the recruit should actually withdraw the pin (but should replace it before throwing the grenade); this is to show him the amount of resistance that is to be expected.

3. It should be carefully explained to him that the pin is replaced in this case in order to prevent the loss of time which would occur in recovering, recocking and replacing levers.

4. When throwing is in progress the instructor (or some member of the class detailed by him) standing in a suitable position to observe the strike of the grenades, will give the correction or corrections necessary to bring the next throw on to the target.

5. Corrections will be given to the nearest yard; the word "up" will be used when grenades fall short, "down" when beyond the target, "left" or "right" when the direction is at fault. For example, a grenade strikes 2 yards short and 1 yard to the right of the target; the correction would then be "up 2, left 1."

In practice II (shell holes) the class may be divided into two lines facing each other at opposite ends of the ground. One line throws, the other corrects and picks up the grenade; when the first line has thrown, the second throws back while the first gives the corrections. Throwing thus takes place

alternately from each end, and the time which would be otherwise spent in retrieving grenades is saved.

40. Firing.

The lying position (see Plate 89).

1. In this position the rifle bomber lies face upwards, slightly turned on the right side; right leg straight and pointing towards the target; upper part of the body slightly raised and supported on the right elbow; left knee bent and raised, left foot resting on the ground close to the right knee (whether inside or outside the knee depends upon the individual; the important point is steadiness). *Butt* of the rifle bedded in the ground below or in front of the right shoulder, right hand at the *small*. The left arm, fully extended, rests against the inside of the left knee; the left hand, grasping the rifle between the *band* and *nosecap*, supports it, *trigger guard* upwards, at an angle of 45°. The relation between rifle and body must be such that the firer's head, the axis of the rifle and the point of aim are in one plane.

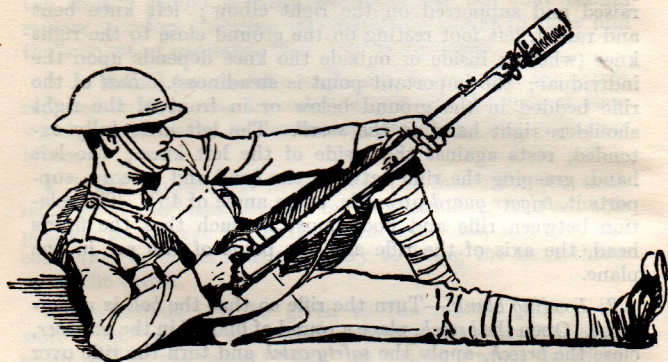
2. *Loading blank*.—Turn the rifle so that the *bolt* is uppermost. Open the *breech*, place a round of blank* in the *chamber*, close the *breech*, apply the *safety catch* and turn the rifle over again so that the *trigger guard* is uppermost.

3. *Range setting*.—Slip the rifle back under the right arm-pit so that the *discharger* is in a convenient position for the adjustment of the *shutter*. Hold the rifle or *discharger* with whichever hand is most convenient, and set the *shutter* to the range required.

* Cordite or ballistite, according to the type of grenade being fired.

4. *Loading the grenade.*—With the rifle still under the armpit, slip the right forearm under the rifle so as to support it and leave both hands free. Take the grenade from the haversack with the left hand and see that the *gas check* is tight, by screwing it up.

PLATE 89.



RIFLE GRENADE—FIRING POSITION, LYING.

Grasp the *nose cap* or *discharger* with the right hand and insert the grenade (taking care that the *lever* is inside the *discharger*) until the *safety pin* is just clear of the mouth of the *discharger*.

Place the forefinger through the *ring* and withdraw the *pin*, using the remaining fingers against the side of the *discharger* to obtain leverage; press the grenade fully down and retain the loose *pin* on the finger. Return the rifle gently to the firing position.

5. *Unloading without firing.*—Draw the rifle gently back to the loading position. With the left hand withdraw the grenade sufficiently far from the *discharger* for the *pin* to be reinserted. Hold the grenade in this position with the thumb and forefinger, and support the *discharger* with the remaining fingers. Replace the *pin* and unload the grenade from the *discharger*. Unload the blank.

6. *Aiming.*—The rifle, at 45° elevation, is aimed by aligning the centre line of the *barrel* and *discharger* on the point of aim; in so doing it is essential that the firer's eye should be directly above and behind the rifle; in other words, the point of aim, the axis of the rifle, and the firer's eye must all lie in one vertical plane.

7. *Firing.*—Release the right hand from the *small* of the butt and push the *safety catch* forward; close the fist lightly, extend the forefinger and place it on the *trigger*, taking care that no other part of the right hand touches the rifle. Take the first pressure when the aim is correct, and after a momentary pause take the second pressure.

8. *Reloading.*—Turn the rifle over, open the *breech*, reload with blank, apply the *safety catch* and proceed as before. In reloading after a missfire (with grenade in) the procedure is the same, but care must be taken not to disturb the grenade in the *discharger* by jerking the rifle or dropping the *muzzle*.

NOTES FOR INSTRUCTORS.

i. For convenience the position will generally be taught from the "order": on the command "Lying position" the position laid down in para. 1 will be adopted.

ii. *Cut-offs* will be closed before beginning this and the following lesson.

The Kneeling Position (Firing). Plate 90 (a) and (b).

9. In the kneeling position the right knee must be pointed towards the target and be as close as possible to the left foot without causing unsteadiness (if this is not done it will be difficult to obtain the correct relationship between the positions of rifle and body, and faulty aim will result). The firer may rest his body on his right heel, or not, as he wishes. The left forearm rests on the left knee; the hand grasps the rifle between *band* and *nosecap* and supports it at an angle of 45° , *magazine* upwards, close to the right side. *Butt* bedded in the ground near the right knee. Right hand at the *small of the butt*. As this position will generally be taught from the "order" as a matter of convenience in the early stages, the position will be taken up by advancing the left foot a full pace and sinking down on the right knee.

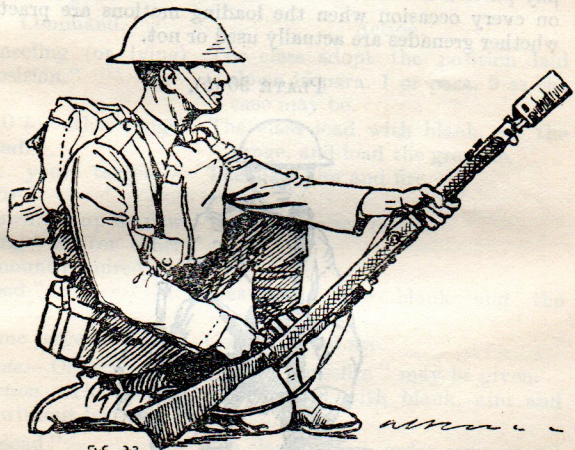
10. Loading blank, range setting, loading the grenade, unloading without firing, aiming, firing and re-loading will be carried out as when lying.

The Firing Positions.

11. The lying position will be used whenever possible as it is the steadiest and the most comfortable position, and exposes the firer least. The nature of the ground or cover

must, however, decide. The kneeling position will be used whenever the shape of the ground or the height of the cover prevents the lying position being used. In firing from a trench the *butt* of the rifle will be rested against the rear wall. Grenades will not be fired from the shoulder or hip.

PLATE 90 (a).



RIFLE GRENADE—FIRING, KNEELING, SIDE VIEW.

12. It should rarely be necessary to unload a grenade without firing; the method must be taught, however.

13. *Safety pins* will only be withdrawn :—

- (a) By the instructor when demonstrating.
- (b) By the class when imitating.

They will be replaced when carrying out the method of unloading without firing. When practising, the motions of withdrawing the *pin* will be gone through. Instructors must pay particular attention to this and must see that it is done on every occasion when the loading motions are practised, whether grenades are actually used or not.

PLATE 90 (b),



RIFLE GRENADE—FIRING POSITION, KNEELING,
FRONT VIEW.

14. The fact that the grenade is not actually fired from the *discharger* in these lessons gives rise to certain difficulties when practising; it will therefore be best in some cases to go through the motions of loading without actually using grenades.

15. To facilitate control of the practice the following procedure is suggested :—

Allot targets.

Command.

Action.

- “Kneeling (or lying) position.” The class adopt the position laid down in para. 1 or para. 9 as the case may be.
- “110 (or other range) load.” The class load with blank, set the range, and load the grenade.
- “At your targets—Fire.” The class aim and fire.
- “Down (or up or new range) 30 (or other amount required).” The class re-set range.
- “Load” Class load the blank and the grenade.
- “Same targets—Fire” Class aim and fire.

Note.—Occasionally the word “missfire” may be given.

Action.—The class at once reload with blank, aim and fire, without further orders.

- “Unload” The class unload, order arms, stand at ease.

Note.—Occasionally the command “Unload” should be given immediately following that of “Load.”

Action.—The class unload the grenade, unload the blank order arms, and stand at ease.

41. *Changing from rifleman to rifle bomber.***Lying position.**

1. "A rifleman firing in the lying position with bayonet fixed."

Command:—"Rifle-bomber, 140 (or any range desired)."

On the command "Rifle-bomber" the following sequence of operations will be performed:—

- i. Close the *cut-off* (in the case of rifles without a *cut-off* unload all rounds from *magazine* and *chamber*) and open the *breech*.
- ii. Load with ballistite blank and apply the *safety catch*.
- iii. Draw back the rifle under the right armpit, unfix the bayonet, pass the right arm under the rifle and guide the bayonet into the *scabbard*; force the bayonet fully home with the left hand.
- iv. Take the *discharger* from the haversack or carrier and fix it to the rifle.
- v. Set the range to the distance ordered, or estimate the range if none is given.
- vi. Roll on the right side, swing the legs quickly round and adopt the lying position for bombing.

Changing back to rifleman.

2. "A rifle-bomber in the lying position but without a grenade in the *discharger* and with the *safety catch* applied."

Command:—"Rifleman."

- i. Resume the lying position as a rifleman, but with the rifle under the right armpit ready to detach the *discharger*.
- ii. Detach the *discharger* and return it to the haversack or carrier.

iii. Draw and fix the bayonet.

iv. Return the rifle to the loading position (rifleman).

v. Pull out the *cut-off* and reload with ball. (In the case of rifles not provided with a *cut-off*, load with 5 rounds.)

The change is complete on reloading as a rifleman.

Changing from rifleman to rifle-bomber. Kneeling.

3. "A rifleman firing in the kneeling position with the bayonet fixed."

Command:—"Rifle-bomber, 170 (or any range desired)."

- i. Close the *cut-off* (in the case of rifles not provided with a *cut-off*, unload all rounds from the *magazine* and *chamber*) and open the *breech*.
- ii. Load with ballistite blank and apply the *safety catch*.
- iii. Draw the rifle back slightly and drop the *butt* on the ground; unfix the bayonet, pass the right arm under the rifle and return the bayonet to the *scabbard*.
- iv. Take the *discharger* from the haversack or carrier and fix it to the rifle.
- v. Set the range.
- vi. Adopt the kneeling position for bombing.

Changing back to rifleman.

4. "A rifle-bomber in the kneeling position but without a grenade in the *discharger* and with the *safety catch* applied."

Command:—"Rifleman."

- i. Detach the *discharger* and return it to the haversack or carrier.
- ii. Draw and fix the bayonet.

- iii. Resume the kneeling position as a rifleman.
- iv. Pull out the *cut-off* and reload with ball (in the case of rifles not provided with a *cut-off*, load with 5 rounds.)

The change is complete on reloading as a rifleman.

NOTES FOR INSTRUCTORS.

1. These lessons are intended to train the soldier to change quickly from rifleman to rifle-bomber and the reverse. The loading of the grenade is not included, as this is already taught in another lesson, and if introduced here would cause delay, particularly when changing back to rifleman.

2. When changing to rifle-bomber see that :—

- (a) *Dischargers* are properly fixed.
- (b) Bayonets are returned to the *scabbard*.
- (c) *Cut-off* is in and rifles are loaded with blank.
- (d) Ranges are properly set.

3. When changing back to rifleman see that :—

- (a) *Dischargers* are properly returned to the haversack or carrier (particularly when lying down).
- (b) *Cut-offs* are out and rifles loaded with ball.

4. Once the recruit has learnt the detail of the lessons, he should be quickened up by conducting the practice as a competition between the members of the section.

Kit required.

Rifles

Bayonets

1 *Discharger*... ... } for each man of the section.
1 Dummy blank ... }

42. Dummy firing.

The range.

1. **The live firing range will never be used for dummy firing.** The ground chosen should preferably be soft grass land in order to avoid breakages. There should be no long grass, &c., near the targets, or difficulty will be experienced in finding the grenades and time will be wasted. The size of the ground should, if possible, admit of targets up to the full range of the weapon and should enable a number of sections to work at the same time. It is desirable that cover such as a ditch, low bank, &c., should be available at the firing point. Failing this, screens or sandbag parapets should be used. Rifle-bombers must be trained to make use of cover at all times. Firing points will be numbered.

Targets.

2. Targets should represent sections of trench, shell holes, &c., and not individual men. According to the space available, there may be either one group of targets for all the firing points, or one group for each. On a permanent range the various targets may be dug in the form of shallow trenches or shell holes. On ground where digging cannot take place they should be built up with sandbags. One sandbag high is sufficient.

Targets should be arranged at various distances between the shortest and longest ranges : three is a suitable number ; they may be marked by numbered boards visible from the firing points.

Range discipline.

3. Range discipline is necessary :—

(a) For safety.

(b) To ensure smooth working and prevent waste of time.

4. The following rules are laid down as a guide :—

- i. The instructor and the detail firing, only, will be on the firing point.
- ii. The next detail to fire will wait five yards in rear of the firing point.
- iii. The remainder of the class will be not less than 10 yards in rear of the firing point.
- iv. No man will fire without the direct individual order of his instructor.

Method of conducting practice.

5. Sections will be formed up at least 10 yards in rear of the firing point and the order of firing given out.

A rifle fitted with *discharger*, a supply of grenades and blank will be at each firing point.

6. Each man will load and fire on the order of his immediate commander.

7. After firing his last grenade he will make any correction in the range he may still think necessary. On the command "Unload" he will unload the rifle, close the *gasport*, ground arms, and stand up.

8. The number of grenades which can be fired by each detail will depend upon the numbers available in units, but two should be considered the minimum. Details may repeat the practice as often as time permits. It will be necessary to recover the grenades at intervals.

9. Instructors on the firing points will deal with the question of wind allowance. So far as possible they will get the recruit

to make his own estimates. Apart from the wind, errors in direction may be due to two causes :—

- (a) *Faulty aim* caused by the firer's eye not being truly in the plane of the rifle barrel; this fault is most common in the kneeling position and the tendency is usually to throw the shots to the left.
- (b) *Flinching*, which results in a stiffening of the muscles—particularly those of the left arm—at the moment of firing; the result is generally to throw the shots to the right.

Kit required.

- | | |
|------------------------------------------|---------------------|
| 1 E.Y. (emergency) rifle | } for each section. |
| 1 discharger | |
| 2 or more dummy grenades for each firer. | |
- Blank, as required, plus an allowance for misfires.
Sandbags and screens, if required.

TRAINING WITH LIVE GRENADES.

43. Points before throwing or firing live grenades.

Inspection and preparation.

1. Live grenades must be carefully inspected as a preliminary to their preparation for use. This inspection is for the purpose of discovering :—

- (a) Defects which might lead to prematures.
- (b) Defects which might cause blinds or weak explosions.

2. Inspection should always be carried out according to a definite plan in order to prevent points being overlooked.

The detail of inspection will depend upon the type of grenade. The sequence laid down will be followed.

3. Grenades and their burster or igniter sets will never be inspected together; the inspection of the grenades should be completed first, they will then be repacked and placed on one side. Inspection of the igniter or burster sets follows. The object of this precaution is to prevent the possibility of a grenade becoming primed. *It must never be taken for granted that a grenade is "safe."* Whenever one is handled, the plug or other device covering the detonator chamber must always be removed at once to ascertain whether it is primed or not, and while so doing the utmost care should be taken.

4. The points to be looked for are given in the following table:—

No. 36 grenade.

Precaution.	Reasons.
i. Remove the <i>base-plug</i> and examine the interior of the grenade.	To make sure that the grenade is "safe," i.e., that it is not primed.
ii. Examine the outside of body for cracks, beginning at the <i>base</i> .	A cracked body might allow damp to penetrate and cause a blind. It might also cause the grenade to break up in the <i>discharger</i> when fired.
iii. Examine the <i>filling screw</i> to see that it is properly home and sealed.	A loose screw might allow damp to penetrate and cause a blind.

Precaution.

Reasons.

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| iv. Examine the <i>shoulders</i> to see that they are not broken. | A broken <i>shoulder</i> might result in premature release of the striker. |
| v. Examine projecting portion of <i>striker</i> to see that it is properly sealed with wax and that the <i>lever</i> is correctly engaged. | Defective sealing might allow damp to penetrate. |
| vi. Examine the <i>ring</i> and <i>safety pin</i> to see that they are sound and that the <i>lever</i> is properly held. | To facilitate the use of the grenade. |
| vii. Examine the <i>lever</i> to see that it is properly fitted in the <i>shoulders</i> and that its long arm fits close to the body of the grenade. | A projecting <i>lever</i> might catch in the <i>ring</i> of another grenade when taking it from the haversack, or might catch on the edge of the <i>discharger</i> when loading, and therefore be dangerous. |
| viii. Apply the <i>striker</i> test as follows:—
(1) Close the points of the <i>safety pin</i> to facilitate withdrawal.
(2) Hold the grenade as for throwing and remove the <i>pin</i> . | This test ensures that the whole of the <i>striker mechanism</i> is in working order, that the <i>striker</i> is free to move, |

Precaution.

Reasons.

- (3) Placing the base of the grenade against the waist-belt allow the *striker* to fall; remove *striker* and *spring* from the grenade.
- (4) Take the *striker* from its *spring* and place it in the grenade; see that it works perfectly freely in the *striker way*.
- ix. Examine the *centrepiece* to see that it is not cracked and is clean; see that the two *barrels* are free from corrosion, dirt or dents, &c. Particularly look for holes or cracks in the wall between the two *barrels*.
- x. Look into the *striker way* and examine the face of the *striker*. See that it has two *nipples* and a *gas slot*.
- xi. (1) Reassemble the *striker* mechanism and recock, using a cartridge or empty case to compress the *spring*.

A jammed *striker* may cause a dangerous blind.

Any grenade in which the *spring* appears weak, or in which the mechanism seems to work stiffly, should on no account be used.

Dirt, &c., might prevent the insertion of the *igniter set* or cause jamming of the *striker*.

Cracks in the *centrepiece* might allow a flash from the *cap* to pass direct to the *detonator* and cause a premature.

The absence of a *gas slot* might cause a rise of pressure which would result in a rapid burning of the fuze or even "flashing over" and cause a premature.

Precaution.

Reasons.

- (2) Press down the *lever*, replace the *pin* and open out the points sufficiently to ensure safety, but not so far as to prevent removal of the *pin* in use.
- xii. Replace the *base plug* and return the grenade to its box.

Igniter set No. 36 grenade.

5. In carrying out this inspection, hold the *igniter set* by the *cap chamber* and fuze rather than by the *detonator*.

Precaution.

Reasons.

- i. Examine the *cap*; see that it has a central *gas escape* and that this is covered with a disc of waterproof paper.
- ii. See that the *cap* is properly fitted in the *cap holder*.
- iii. See that the *fuze* is buff coloured, that it is firmly fixed and that the joint is shellaced.
- iv. See that the *detonator* is firmly crimped to the fuze.
- Absence of a *gas escape* might result in "flashing over" and cause a premature. Absence of the waterproof disc might have allowed damp to penetrate.

Precaution.

Reasons.

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| v. Lute the joint between the fuse and the <i>detonator</i> with plasticene or mud. | To exclude the possibility of a flash from the <i>cap</i> penetrating direct to the <i>detonator</i> and causing a premature. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|

Smoke grenades and burster sets.

See Sec. 53, 3-7, for points to note during inspection.

Signal grenades.

See Sec. 54, 30-33

Preparation for use.

6. Preparation for use consists in fitting the *igniter set* to the grenade. *In peace time this must only be done in the priming bay of the live practice trench immediately before firing or throwing.*

- i. Remove the *base plug*.
- ii. Insert the *igniter set*.
- iii. Replace the *base plug* and tighten it with the key.

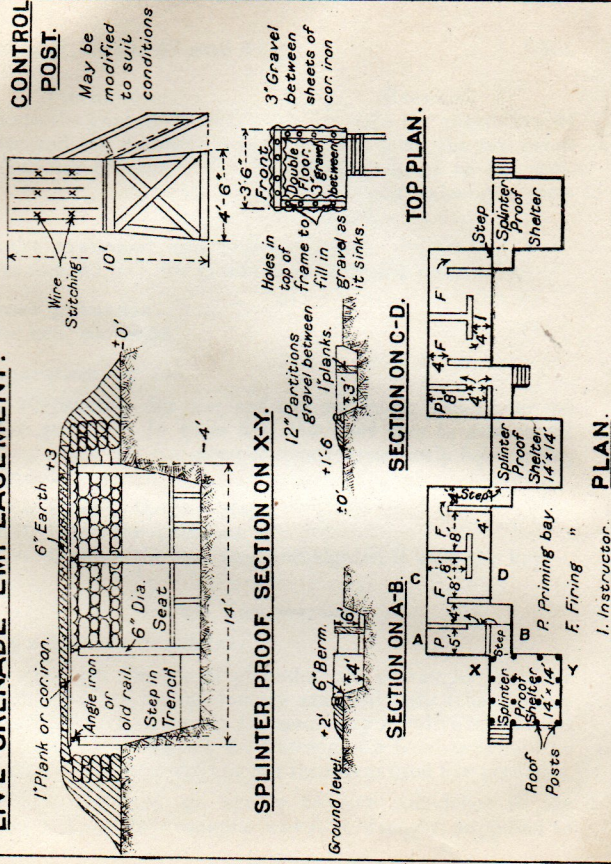
44. *Live practice.*

High explosive grenades.

1. Although the use of grenades can be taught in all its branches by employing dummy material only (the dummy grenade behaves in exactly the same way as a live one except that it does not explode) the training of a bomber cannot be considered complete until he has thrown or fired live grenades.

2. Live practices are simply to give confidence to the soldier in handling a weapon which is, wrongly, supposed to

LIVE GRENADE EMPLACEMENT.



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be very dangerous. With present day equipment accidents can generally be traced to one of four main causes :—

- (a) Ignorance.
- (b) Negligence.
- (c) Deliberate mishandling.
- (d) Fright.

The first three can be excluded by training and supervision; the last can be overcome by live practice. Confidence comes quickly after throwing even one grenade, but two should be considered the minimum. When the allowance of grenades permits, two should be fired from the *discharger* in addition to those thrown.

The range.

3. The plan of the live bombing range is shown in Small Arms Training, Vol. III. (The plan of suitable live throwing and firing trenches is shown in Plate 91.) The danger area must be clearly marked out by red danger flags and look-out men posted whenever the range is in use. A minimum distance of 200 yards must be allowed in all directions from every possible point of burst.

Targets.

4. Targets should be similar to those used for dummy firing, i.e., shallow trenches and shell holes; if it is not possible to dig they should be built up with sandbags. Each may be marked by a number, preferably of metal, placed near it to facilitate indication. One target (for throwing) will be placed in front of each throwing bay. For firing, a single set of targets, at distances intermediate between the minimum and maximum ranges of the weapon, will suffice for all firing bays.

Safety precautions (see PLATE 91).

5. The following safety precautions will be strictly observed:—

- (a) Before bombing begins all danger flags must be raised, look-out men posted and the whole of the ground, including the danger area, ascertained to be clear of persons and live-stock.
- (b) A medical orderly provided with all first aid appliances should be in attendance on the range under suitable cover (generally in one of the waiting bays). If a medical orderly is not available, a box containing tourniquet, bandages, iodine, &c., must be provided and kept in the observation post throughout the practice. In any case the medical officer will be informed that live firing is to take place.
- (c) Every person on the bombing range, for whatever purpose, must wear a steel helmet.
- (d) Smoking is absolutely forbidden on the range, and at any time when live grenades, *detonators*, &c., are being handled or carried.
- (e) A red danger flag will be kept in the control post during practice. This will be lowered as a signal that practice is about to begin, the officer having first satisfied himself that danger flags and look-out men are in position and that the range is clear. No person may enter the danger area unless the flag on the control post is raised.
- (f) An officer will always be in charge and will control the practice from the control post.

- (g) An N.C.O., who must be a trained bomber, will be on duty in each priming *bay* and in each throwing or firing *bay*.
- (h) Not more than one person in addition to the N.C.O. on duty will be in any priming, throwing or firing *bay* at any time.
- (j) Everyone, except the Officer in the Control Post, the N.C.Os. on duty in the priming, throwing or firing *bays*, and the men actually throwing, priming or firing, will be under cover in the *waiting bays* (splinter-proof shelters).
- (k) No grenade will be primed until the man enters the priming *bay* preparatory to throwing or firing. To ensure that this rule is obeyed, the box containing the *igniter sets* will be in the possession of the N.C.O. on duty in the priming bay, who will issue the number required to each man in turn as he enters and will personally superintend the operation of priming.
- (l) No grenade will be loaded, and no man will fire or throw without the direct individual order of the officer in charge.
- (m) Any order to take cover must be instantly obeyed.
- (n) To eliminate any possibility of premature, all the points laid down for the inspection and preparation of grenades and *igniter sets*, &c., will be strictly observed.
- (o) Every blind will be recorded, and before the range is left must be accounted for and destroyed by blowing up.
- (p) The "demolition" box must always be on the range during practice.

Action under special circumstances.

6. *Blinds*.—Should a blind occur everyone will remain under cover until further orders. In every case an interval of one minute will be allowed, from the time the grenade should have burst, before the practice is continued or any movement in the open is made. If the blind occurs during a throwing practice, it is the duty of the officer in charge, after allowing one minute interval, to proceed alone, render the grenade safe (by unpriming, if necessary), and remove it to the place provided for the reception of the blinds, pending their destruction (usually a small hole dug in front and to a flank of the trench). If the blind occurs during a firing practice its recovery may be postponed until the end of the practice.

Handling of Blinds—No. 36 Grenade.

7. It should be possible for the officer in charge to deduce the cause of a blind in nearly every case before he proceeds to examine it.

- (a) If the *cap* fires, the crack is generally distinctly audible and indicates that *striker* and *cap* have functioned correctly.
- (b) If smoke comes from the grenade while in the air or after reaching the ground it shows that the *fuze* is burning properly.
- (c) If, after these indications, a blind still results, it means that some defect has prevented the flame reaching the *detonator* or that the *detonator* itself is defective; in either case it may be regarded as a "safe" blind.

8. Blinds which have given no indication must be regarded with suspicion, as it may mean that the *striker* is still com-

pletely or partially held up and is therefore dangerous. The most probable cause, however, is a defective *cap*, in which case the blind may be regarded as safe.

9. In going to recover blinds the officer must take with him a spare *lever*, *pin* and *key*. Before touching the grenade he must look to see if the *striker* is fully up, fully down, or in some intermediate position. Should the *striker* not be fully down (which is practically impossible if the *striker* test has been applied) the spare *lever* must be carefully refitted and the *pin* inserted before removing the grenade.

If the *striker* is found to be either fully down or in some intermediate position, the officer will at once unprime the grenade.

Grenade dropped with pin out.

10. It may happen occasionally that a clumsy or nervous man will drop a grenade when in the act of throwing. In such a case no attempt must be made to pick up the grenade. The occupants of the *bay* will at once take cover round the traverse and leave the grenade to explode. Should the thrower show hesitation or lose his head under such circumstances the N.C.O. on duty must be prepared to act instantly and with energy; he will be the last to leave the bay. The *time fuze* of 7 seconds gives ample time for the clearing of a bay.

Accidental release of striker when firing.

11. Grenade remains in *discharger* with fuze burning. In this case, rifle and grenade together must be thrown over the parapet at once and cover taken. No attempt must be made to save the rifle. As in the previous case the N.C.O. on duty must be prepared to take such action as may be necessary to ensure safety. This occurrence is generally attributable to defective blank; the pressure produced—particularly with an open *gasport*—is just sufficient to lift the grenade

nearly out of the *discharger* so that the *lever* is set free; the grenade then slips back into the *discharger*. Variations of this may occur; the grenade may be forced from the *discharger* and fall into the bay, in which case it must be treated as a dropped grenade.

Method of conducting practice.

12. Sections will be told off into details, the requisite number of grenades (unprimed) will be issued to each man, and will then be marched into their respective waiting bays.

13. N.C.Os. for duty will then take their places; those detailed for the priming bays will have with them the necessary number of igniter sets in their boxes.

14. The officer in charge will take his place in the control post; he will have with him the demolition box and any spare grenades there may be. Having ascertained that all safety regulations have been complied with he will lower the Control Post flag and order the first detail into the priming bay.

15. The first detail will prime their grenades and pass on to the throwing or firing bays as the case may be; the second detail will at once take the place of the first in the priming bay.

16. *Only those grenades will be primed which are to be used before returning to the waiting bay*: no man will return to the waiting bay with a primed grenade. Should the practice be stopped for any reason before the number of primed grenades has been used, the N.C.O.s in throwing or firing bays will see (failing orders to this effect) that the unused grenades are unprimed; they will retain the igniter sets.

17. If a throwing practice is being carried out the following words of command will be used:

Command.	Action.
"No. 1 ready" (the number means No. of bay)	No. 1 prepares to throw; when he is ready to do so the N.C.O. will hold up his hand as a signal to the officer.
"No. 1 throw"	... No. 1 withdraws safety pin, throws, observes fall of his grenade and takes cover. Whenever the command "throw" is given the occupants of all other bays will get under cover.

Should a blind occur all concerned will act as laid down in para. 6.

The officer in the Control Post will observe the actions of the thrower and will watch for any indications of failure on the part of the grenade. As soon as he has observed the fall of the grenade he will himself get under cover; after the explosion he will continue as follows:—

Command "No. 2 ready," &c., &c.

If there are more than two bays the procedure will be the same until all have thrown one grenade. No. 1 will then throw his second grenade; the same sequence will be observed until all grenades have been thrown by the detail.

Command.	Action.
"Change"	... First detail return to their waiting bays; second detail replaces first in the throwing bay, and third moves from waiting bay to priming bay.

18. If a firing practice is being carried out the procedure will be as follows:—

Command.	Action.
"No. 3 (or other) target. Detail ready"	Detail loads blank (but not grenade), applies <i>safety catch</i> , and sets range (under cover).
"No. 1 load" ...	No. 1 loads grenade and aims. As soon as he is ready the N.C.O. will hold up his hand.
"No. 1 fire"...	No. 1 fires, observes fall of his grenade, takes cover, reloads blank and resets range if necessary. Whenever the command "fire" is given the occupants of all other bays will take cover. The officer will act as in throwing practice.

With the above differences the practice proceeds in the same way as a throwing practice.

Kit required—

Demolition Box containing:—

- 1 box safety fuze No. 11, Bickford's.
- 1 box No. 8 Mk. VII detonators.
- 1 cylinder 1 oz. guncotton primers.
- Plasticene.
- 1 Rectifier.
- 1 pair (crimping or side cutting) pliers.
- 1 baseplug key.
- 1 spare lever.

1 spare pin complete.

(Matches must be available but must not be carried in the demolition box).

A knife will be required.

Grenades }
Igniter sets } In equal numbers as required.
First aid appliances.

If firing is being carried on, the following are required in addition:—

Rifles fitted with }
dischargers } 1 for each firing bay.
Ballistite blank, as required.
Baseplug keys, 1 for each priming bay.
Haversacks will be worn.

45. Destruction of blinds.

1. The spot chosen for the destruction of blinds should be within 15 yards of the trench or other effective cover.

2. Grenades to be destroyed will be placed in a small hole dug for the purpose or in a grenade crater; not more than four will be destroyed at one explosion.

3. A suitable length of *safety fuze* will be fitted to a No. 8 Mk. VII detonator (8 inches of No. 11 fuze gives about 20 secs.). A guncotton *primer* will be prepared for the reception of the detonator by easing out the central hole with the wooden *rectifier*; this operation must be carried out gently so as to minimise friction. *No metal instrument will ever be used for this purpose.* The detonator will then be fitted into the *primer*; *the detonator must never be forced in*; if the hole in the *primer* is not large enough it must be further enlarged with the

rectifier. To prevent the *detonator* coming out, a little plasticene or mud should be used to lute the joint.

4. The best way of arranging the grenades to be destroyed is in the form of a cone, *bases* downwards, at the bottom of a conical hole; the guncotton *primer*, fitted with its *detonator* and *fuze*, will then be placed in the space between the grenades; all the grenades must be in contact with the guncotton *primer* and with one another as far as possible. The whole charge will be firmly fixed by means of loose earth, pieces of turf, &c., and covered about two inches deep; the *fuze* will be left projecting through the covering of soil.

5. Having ascertained that all other persons are under cover the officer will light the *fuze* and himself take cover. After the explosion an inspection will be made to see that all the grenades have really been broken up and destroyed.

6. When preparing the charge the officer may be assisted by one other person only; with this exception everyone will remain under cover.

NOTE.—See Sec. 53, 8–11, for special instructions regarding smoke grenades.

46. Recording and reporting failures and defects.

1. All cases of failures and defects in material will be recorded, and if it is considered that they are due to faults in design or manufacture, a report will be made in the prescribed manner.

2. Such cases would be:—

(a) Defects noted during the inspection of grenades and *igniter, &c., sets*.

(b) Failure of any portion of the *igniter, &c., sets, e.g., cap, fuze, detonator*.

(c) Failure of the grenade to detonate although the *igniter set* has functioned perfectly (when this failure occurs, the grenade is burst into two or three large pieces by the *detonator*, and if examined, some of the explosive will usually be found; very little noise is made by a grenade bursting in this way).

(d) Defects in blank, *i.e.*, misfires, weak explosion resulting in grenades going short or even remaining in *discharger, blowbacks, split cases, &c.*

(e) Any defects found in rifles or *dischargers* after use.

3. In making such records or reports the following information will be obtained if possible:—

(a) Designation of article; number, mark, &c.

(b) Dates of manufacture and packing.

(c) Name of manufacturer, packer's notes, &c.

(d) Any markings on the article in question, such as base markings in the case of cartridges.

4. In the case of the failures mentioned in para. 2 (d), the number of the rifle and of the *discharger* will also be recorded. Whenever the defective article itself can be produced, it should be forwarded with the report.

47. Precautions in handling live material.

(For precautions during live practice see Sec. 44, 5.)

1. Live material will not be used unless a qualified officer is in charge. The use of improvised grenades of a dangerous nature, and the carrying out of unauthorised experiments, is forbidden.

2. Demonstrations with live material will not take place inside any building. Dummy material only will be used at lectures. (See Vol. I, Sec. 8, 3).

3. No smoking will take place while live material is being handled.

4. *Detonators* must never be handled roughly nor must force ever be used in fitting them; they must not be left lying about; a *detonator* once crimped to a *fuze* will never be pulled off; should it be necessary to remove it the *fuze* must be cut. On no account must any attempt be made to interfere with or remove the *fulminate* from a *detonator* for any purpose whatever.

5. Should a primed grenade not be expended, the igniter or burster set will be at once removed and returned to its box. Particular care will be taken that no grenade is returned to store primed.

6. A book will be kept in which the numbers of grenades, *igniter* or *bursting sets*, *detonators* and guncotton *primers* drawn from store will be recorded in words and figures; numbers expended and returned will be similarly recorded and the totals balanced. Each person taking over the material will sign a receipt in a column or columns which will be provided for this purpose.

7. Steps will be taken to ensure that all concerned with the care, storage or handling of grenade stores are familiar with the distinctive markings of live and dummy material.

8. The "making safe" of blinds, investigation of doubtful cases and similar operations with live material will only be carried out by a qualified person; in no case will this be done inside any building or in the presence of "spectators."

9. Dummy grenades will not be filled for use as live ones.

10. Smoke (W.P.) grenades will be stored apart from all other material and will be frequently inspected for signs of leakage or corrosion, especially at the *detonator sleeve* and joints in the *body*. All grenades showing serious defects of this nature will be destroyed by blowing up.

48. Tests of elementary training.

1. Oral tests.

I.—Questions will be put to each man on:—

- (a) Necessary knowledge of the mechanism and its action in the case of each type of grenade in use.
- (b) Knowledge of the mechanism, fixing, care and cleaning of the *discharger*.

II.—Knowledge of the elementary precautions to be observed in handling grenades, *detonators*, &c., will be tested by questions.

III.—A general knowledge is required of the purpose and characteristics of each type of grenade, danger zones, effect of wind and reasons for various points in training. A few questions should be put to each man to test his knowledge of the chief points affecting the use of grenades in action.

2. Inspection tests.

I. Inspection and preparation for use of grenades and of *bursting* or *igniter sets*. Each man should be required to carry out the test with dummy material and at the same time describe what he is doing.

II. Range setting. Several distances will be named.

III. Firing positions. Each man will be individually inspected in each of the firing positions. The test will be conducted on the lines laid down in Sec. 40, 15.

3. Standard tests.

I. *Throwing* :—(a) *Standing*.(b) *Lying*.

These tests will be carried out on the "cage" and in the lying position respectively; the number of grenades will be 15.

- i. The man will throw first at the centre target of the three (cage or shell hole as the case may be) until he has thrown three grenades into it;
- ii. He will then take the right-hand target and throw until he has three grenades in this also;
- iii. The balance of the grenades can be expended in throwing two grenades into the left-hand target.

If all grenades are expended before two grenades have been thrown into the last target, the thrower fails.

II. *Firing*.—Each man must fire three grenades out of five into a circle 40 feet in diameter, at a range of 140 yards. Aiming mark—a shell hole in the centre of the circle. Firing position according to the ground.

III.—(a) Changing from rifleman to rifle-bomber, lying 40 seconds.

(b) Changing from rifle-bomber to rifleman, lying, 20 seconds.

(c) Changing from rifleman to rifle-bomber, kneeling, 40 seconds.

(d) Changing from rifle-bomber to rifleman, kneeling, 20 seconds.

These tests will be carried out as laid down in Sec. 41. The time will be taken from the command "Rifle-bomber" or "Rifleman" as the case may be, until the change is completed.

4. In addition to the foregoing tests, all officers, Warrant and N.C.Os. whose duties in peace or war require them to deal with grenades or grenade training, must be able to assemble a *fuze* or *detonator* (see Sec. 49), prepare a charge and destroy *blinds* (see Sec. 45); they must know the safety precautions and rules laid down for the conduct of live practices and for the handling of live material; they must also know the methods of packing all grenade stores in peace and war.

5. Officers who may be responsible for the care and storage of grenade stores must be familiar with the rules laid down in Regulations for Magazines and Care of War Matériel.

MECHANISM.

49. *Fuzes and detonators; igniter sets.***Fuzes.**

1. In firing charges of explosives, it is necessary for the man who is firing the charge to be able to do so from a safe distance, or to be given time to take cover before the explosion occurs.

2. For firing charges at a distance, "instantaneous" *fuze* is employed; this burns at the rate of about 90 feet in one second and the length used depends upon the safety distance required.

3. **Instantaneous Fuze is never used** in grenade work, even for the destruction of blinds, but it is necessary for everyone who may have to destroy blinds to be familiar with its appearance and characteristics in order to be able to distinguish it when met with.

Instantaneous fuze is coloured orange and is ribbed on the outside by means of crossed threads wound round it to enable it to be distinguished by touch in the dark.

4. **Safety fuze** is black in colour and has a smooth surface; it is slow burning, and is used in comparatively short lengths.

The time that elapses between the lighting of the fuze and the explosion allows the firer to get under cover.

Safety fuze is used in grenade work in connection with the destruction of blinds and also forms part of the firing mechanism of many grenades themselves.

5. **Bickford's No. 11 Safety Fuze.**—This fuze burns at the rate of 36 inches in approximately 90 seconds (1 inch in $2\frac{1}{2}$ seconds). There may be a variation of 15 seconds, less or more, in every 36 inches. It consists of a core of finely-ground gunpowder surrounded by strands of hemp or jute covered by a layer of guttapercha and finally by a covering of black waterproof tape. It is packed in tins containing rolls of 8 fathoms (48 feet). The rate of burning is marked on the label on the lid of the tin.

Fuze Precautions.

6. When taking a new box into use the rate of burning should be tested by burning a measured length (say 6 inches) and noting the time taken.

7. Always unroll the fuze; attempts to straighten out a coil by pulling the loose end will result in the formation of kinks and breakage of the powder trail; this may cause failure in use. The end of the fuze which is to be lighted must be cut on the slant so as to expose a large area of the powder trail.

8. *Lighting the fuze.*—Fuze may be lighted easily by means of a *port fire* or *vesuvian* (specially made for this purpose), but generally matches only will be available.

9. Fuze cannot usually be lighted by applying the flame of an ordinary match; the flame temperature is too low and only results in melting the guttapercha in the fuze which then covers the surface of the powder trail and lighting becomes impossible.

10. The method to be adopted, therefore is to hold the match against the fuze, so that its head is in direct contact with the end of the powder trail, then to rub the prepared surface of the match-box on the head of the match; the burst of flame in close contact with the powder causes it to ignite at once.

11. *Safety fuze* cannot be extinguished even by placing it under water.

Detonators.

12. There is one particular property of high explosives which distinguishes them from gunpowder and certain other low explosives; they can be detonated. Detonation is very much more violent than ordinary explosion, and, therefore, the effect produced by a given quantity of explosive is very much greater. Detonation, however, cannot generally be caused by lighting a high explosive in the ordinary way (moreover some of them are exceedingly hard to light); it is necessary to initiate the detonation in some way and for this purpose a device called a **detonator** is employed.

13. The *detonator*, as used in bombing, consists of a small copper tube closed at one end and partly filled with a small quantity of very sensitive and powerful explosive (much too sensitive to be used in large quantities). This explosive is generally fulminate of mercury or some mixture of this substance.

Its characteristics are that it can be detonated by a blow (as in a percussion cap), by friction, or by a flame.

A *detonator* can, therefore, be set off by the flame from a *safety fuze*, and if placed in contact with a high explosive charge will cause it to detonate.

14. These *detonators* are classified as "Service" or "Commercial," and their size is expressed by a number.

15. An example of a Service *detonator* is the No. 8, Mark VII. These are used in bombing for the destruction of blinds.

The No. 8 Mark VII *detonator* is painted red, and has a small label affixed to it bearing its designation; they are packed in red tin boxes containing 25, each in a separate cardboard recess.

Detonator Precautions.

16. In view of the sensitiveness of the explosive contained in *detonators*, they must be handled with great care.

They must not be struck, crushed or bent, nor subjected to heat or friction.

No attempt will be made to interfere with the substance contained in them.

17. *Detonators* are quickly affected by damp and should always be kept closed in their boxes.

18. When *detonators* are stored the provisions of the Regulations for the Care and Storage of War Materiel will be strictly observed.

Assembling fuzes and detonators.

19.—(i) Cut off the length of *fuze* required; the end which is to be lighted being cut on the slant and the other end square.

(ii) Remove any loose threads which may be sticking to the outside of the *fuze* where it is to be inserted into the *detonator*.

(iii) Measure the distance from the mouth of the *detonator* to the surface of the *fulminate*, by inserting a blade of grass, and mark off this on the end of the *fuze*.

20. Smooth down the end of the *fuze* with the fingers, so that it will go easily into the *detonator* and insert it gently up to the mark previously made. Do not use a screwing motion in doing this as the friction which might possibly be caused would be dangerous.

21. The *fuze* must now be fixed to the *detonator*. For this purpose *pliers* are used.

Place the *pliers* over the *fuze* and slide them down until the jaws are just over the mouth of the *detonator*. (Never put the *pliers* over the filled end of the *detonator*.) Crimp the mouth of the *detonator* so that the *fuze* is firmly gripped.

22. *Fuze* and *detonator* are then ready for use, but to avoid any possibility of flame or water penetrating between the *fuze* and the *detonator*, the joint is luted with plasticine (or mud if no plasticine is available). Only a very small quantity of luting should be used; just sufficient to fill any small crevices there may be.

Igniter and burster sets.

23. *Igniter* and *burster sets* consist of a *fuze* and *detonator* together with a *cap* for lighting the *fuze*. The whole of these leave the factory assembled and ready for use. *Igniter sets* are used in the No. 36 grenade, *Burster sets* in the No. 37 grenade.

Igniter set, No. 36 Grenade. (See Plate 92.)

24. This *igniter set* is composed of a *cap holder* in which is fitted a .22 rim fire cartridge case provided with a central *gas escape* in the base; the *gas escape* is covered with a disc of waterproof paper to exclude damp.

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A 7-sec. length of Nobels buff *safety fuze* (No. 16) is fitted into the *cap* and the joint covered with shellac varnish.

The other end of the *fuze* is fitted into a No. 6 commercial *detonator*.

Action of the igniter set.

25. When the *striker* of the grenade is released, it is driven down on to the .22 rim fire *cap*; the flash from this ignites the *fuze* which burns for 7 seconds; this, in turn, sets off the *detonator* which causes the detonation of the high explosive charge in the grenade.

While the *fuze* is burning, the gases escape through the *escape hole* in the *cap*, the *gas slot* in the *striker*, and the *striker barrel*, to the outer air.

Packing.

26. No. 36 *igniter sets* are packed in red tin boxes containing 12 sets. The designation is printed on a label affixed to the lid. The joint between lid and box is sealed with waterproof tape.

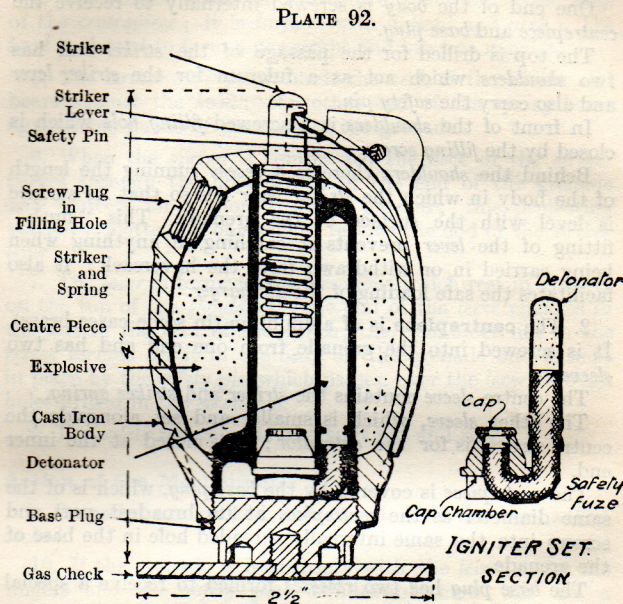
Action of burster sets.

27. The action of *burster sets* is similar to that of *igniter sets*, but as there is generally no other explosive in the grenades with which they are used the *detonator* is only required to burst the case of the grenade, scatter and (in the case of smoke grenades) ignite the contents.

50. The No. 36 hand or rifle grenade. (See Plate 92.)

[Weight $1\frac{1}{2}$ lbs. Filled with high explosive.]

1. The **body** of the grenade is oval in shape and is of cast iron; the outside is grooved, or *serrated*, in order to assist the breaking up, or *fragmentation* of the grenade and also to give a grip for the hand when throwing.



No. 36 HAND OR RIFLE GRENADE
(with gas-check fitted).

Scale $\frac{3}{4}$.

One end of the *body* is screwed internally to receive the *centrepiece* and *base plug*.

The top is drilled for the passage of the *striker* and has two *shoulders* which act as a fulcrum for the *striker lever* and also carry the *safety pin*.

In front of the *shoulders* is a screwed *filling hole* which is closed by the *filling screw*.

Behind the *shoulders* there is a *recess* running the length of the *body* in which the *striker lever* lies so that its surface is level with the surface of the grenade. This "flush" fitting of the *lever* prevents it catching in anything when being carried in or withdrawn from the haversack; it also facilitates the safe loading of the *discharger*.

2. The **centrepiece** is of aluminium (in some cases brass). It is screwed into the grenade from one end and has two *sleeves*.

The *centre sleeve* contains the *striker* and *striker spring*.

The other *sleeve*, which is smaller and set alongside the *centre sleeve*, is for the *detonator*; it is closed at the inner end.

The *centrepiece* is covered by the *base plug*, which is of the same diameter as the *centrepiece* at its broadest part and screws into the same internally threaded hole in the base of the grenade.

The *base plug* has two *recesses* formed to receive a special tightening *key*.

There is a screwed hole in the centre of the *base plug* for the attachment of the *gas check* when firing grenades from the *discharger*.

3. The **striker mechanism** consists of *striker*, *striker spring*, *striker lever* and *safety pin*.

4. The *striker* works in the *centre sleeve* or *striker way* of the *centrepiece*; it is formed with a *head* and *neck*. The *head* is slotted to form a *gas escape* and has two *nipples*.

5. The *striker spring* surrounds the *neck* of the *striker* and bears against the *head*; the other end of the *spring* bears against the inside of the *body* of the grenade.

6. When the *spring* is compressed the *neck* of the *striker* passes through the hole drilled in the end of the grenade and projects for a short distance beyond; this projecting portion is slotted on one side to receive the end of the *striker lever*.

7. The *lever* is formed with *trunnions* which rest in grooves on the top of the *shoulders*; one end of the *lever* engages in the slot in the *neck* of the *striker*, the remainder lies in the *recess* formed for it in the *body* of the grenade and is kept in place by the *safety pin* which passes over the *lever* through holes drilled in the *shoulders*.

8. The *safety pin* consists of a split pin and ring.

Action of the Mechanism.

9. Grenades are packed and issued with the mechanism cocked.

10. If the grenade is held firmly with the *lever* under the fingers and the *safety pin* withdrawn there will be a tendency for the *striker spring* to force the *striker* downwards, to pull down the *short arm* of the *lever*, which is engaged in the *slot* in the *neck*, and to cause the *long arm* to rise. This tendency is resisted by the pressure of the fingers upon the *lever* in grasping the grenade. So long as the *lever* is held the grenade is safe.

11. On the grenade leaving the hand or rifle :—

The lever	flies off under pressure of the—
spring	which drives the—
striker	down on to the—
cap (of the igniter set)	igniting the—
fuze	which burns for 7 seconds and explodes the—

detonator and charge.

Distinguishing Marks.

12. The *live* No. 36 grenade is varnished on the outside as a protection against rust, and is *black* in colour; a *dull red band* is painted round the top of the body and over the filling screw to denote that the grenade is filled; a second band whose colour denotes the particular nature of the filling is painted round the middle of the grenade; a green band denotes amatol, a pink band ammonal or alumatol.

13. The *dummy* No. 36 grenade is coated with zinc and is therefore grey in colour or it may be painted white; there are no coloured bands. *Dummy igniter sets* have the *detonator* nickel plated and drilled at the end or made of paper tube.

Packing and Marking.

14. Live grenades are packed in a wooden box containing 12 grenades, 12 *gas checks*, a tin containing 14 rounds of blank ammunition, a *base plug key* and, in war time, a tin box containing 12 *igniter sets*.

(Note.—The peace time packing differs in that the *igniter sets* are never packed in the box with the grenades but are always stored and carried separately.)

15. The boxes are either painted dark grey or stained brown and have the letter "R" stencilled in black on the *handle cleats*; the nature of the filling is also stencilled on the box and on the lid is a label giving particulars of the contents. Inside the lid is a packer's note.

16. *Live* grenades are normally packed in their boxes base downwards, but on service when it may be necessary to send forward grenades ready primed they will be repacked base upwards as an indication of the fact.

17. *Dummy* grenades are packed 12 in a box with 12 *gas checks* but without either blank ammunition or *igniter sets*. The box itself is painted white and has the nature of the contents stencilled on it. *Dummy igniter sets* are packed 12 in a white tin box.

Precautions.

18. Whenever a grenade—whether dummy or live—is issued for inspection, preparation or use, or is to be handled in any way whatsoever, the person receiving it will at once remove the *base plug* to ascertain whether the grenade is or is not primed. Until grenades have been proved to be unprimed they will be treated as primed.

19. When grenades are being examined with the *base plug* removed and the *safety pin* out (as when trying the action of the *striker mechanism*) the open base will never be turned towards the face or towards another person.

NOTES FOR INSTRUCTORS.

1. In teaching the construction and mechanism of grenades the "question and answer" method should be employed as far as possible, particularly when dealing with the action of the mechanism.

The recruit is thus led to think and reason and his interest is maintained. The names of the various parts can be brought out as the lesson proceeds. Comparisons can be drawn with other things with which the recruit may be familiar in order to illustrate or bring out a point. A man should never be expected to learn by heart a list of the parts and their functions. When it is possible to demonstrate the action of any piece of mechanism this should be done.

2. When demonstrating the action of the mechanism the *base plug* should be out and the grenade held with the base, against the waistbelt or on a table, &c.

To re-cock the mechanism a grenade rod, screwdriver, &c., may be used to push back the *striker* and compress the *spring*. When replacing the *striker*, see that the slot in the *neck* is in the correct position to engage the end of the *lever*, then compress the *spring* until the *neck* of the *striker* projects sufficiently, replace the *lever* and insert the *safety pin*.

3. Before issuing grenades for the first lesson the instructor must himself ascertain that each one is safe, but on all subsequent occasions he will ensure that this safety precaution is carried out by the man. The method of carrying out the first safety precaution may conveniently be described, illustrated and practised at that point in the lesson where the *base plug* is first mentioned.

4. When teaching grenades, too much stress should not be laid upon the question of danger as this will inevitably cause a lack of confidence and nervousness in handling. At the same time it must be impressed upon the recruit that common sense, care and a certain knowledge of the nature of the weapon are essential.

Kit required—

Dummy grenades	...	1 for each man.
Dummy grenades cut to show interior	...	1 for each instructor.
Dummy igniter set	...	1 for each instructor.
Rod for re-cocking	...	1

51. *The discharger.*

[No. 1, Mark I. For use with S.M.L.E. rifles.]

(See Plate 93.)

1. The *discharger* enables grenades to be fired from a rifle to distances greater than a man can throw.

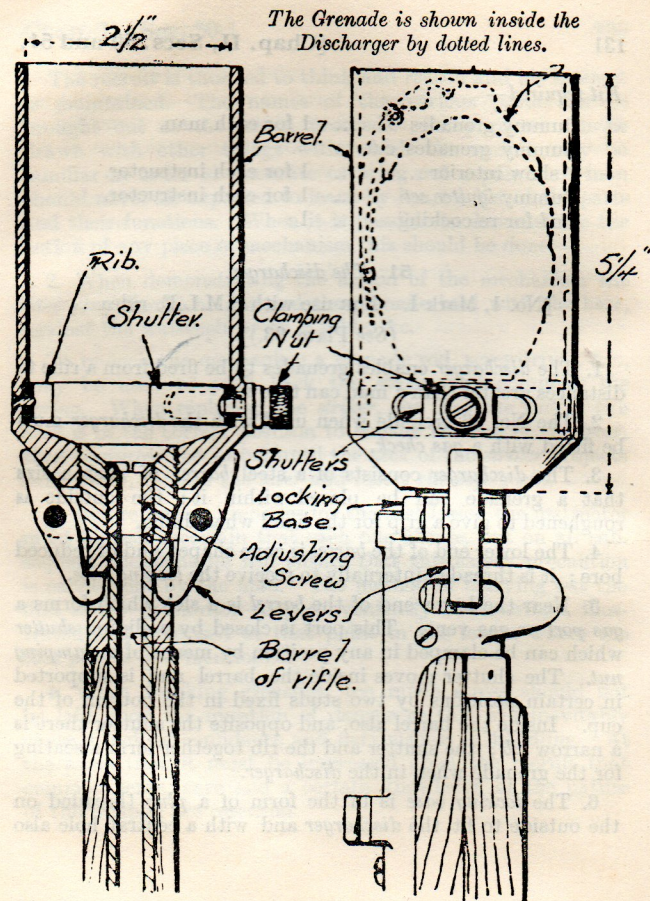
2. The No. 36 grenade when used with the *discharger* must be fitted with a *gas check*.

3. The *discharger* consists of a steel *barrel* of such a size that a grenade can be placed within it: the outside is roughened to give a grip for the hand when fixing.

4. The lower end of the *barrel* is cone shaped and of reduced bore; it is threaded internally to receive the *locking base*.

5. Near the lower end of the *barrel* is a slot which forms a *gas port* or gas vent. This port is closed by a sliding *shutter* which can be clamped in any position by means of a *clamping nut*. The shutter moves inside the barrel and is supported in certain positions by two studs fixed in the bottom of the cup. Inside the barrel also, and opposite the shutter there is a narrow *rib*; the shutter and the rib together form a seating for the grenade when in the *discharger*.

6. The *locking base* is in the form of a *plug* threaded on the outside to fit the *discharger* and with a central hole also



threaded to receive the *adjusting screw*. Below the externally threaded portion and on opposite sides are two pairs of *lugs* in which are pivoted the *claw levers*.

7. A recess is also formed at the side to register with the bayonet stud when fixing the *discharger* to the rifle.

8. The *claw levers* are pivoted at their centres in the *lugs* on the *locking base* and are formed with a claw at their lower ends for the purpose of engaging in the slotted sides of the *nosecap* of the rifle.

9. The *adjusting screw* fits into the central hole in the *locking base* and is itself bored out slightly larger than the bore of the rifle; the top of the *adjusting screw* is slotted to take a screw driver or the point of a bayonet.

Fixing the discharger.

10. Unscrew the *locking base* about three turns and see that the *adjusting screw* is also screwed back about $\frac{1}{8}$ inch within the face of the *locking base*.

11. Holding the *discharger* mouth upwards in the right hand, press in the tops of the *claw levers* with the forefinger and thumb of the left hand so that the claw ends are wide apart.

12. Place the *discharger* on the *nosecap* of the rifle so that the recess in the *locking base* registers with the bayonet stud (if the fixing is done standing or sitting the rifle may be held, barrel outwards, between the knees).

13. Slide the thumb and forefinger of the left hand to the bottom of the *levers* so that the claws are pressed into engagement with the slots in the *nosecap* and the *discharger* is thus held loosely on the rifle.

14. With the right hand, screw the barrel of the *discharger* tightly down on to the *locking base*. The cone shaped end

of the *barrel* of the *discharger*, bearing against the upper ends of the *claw levers*, forces them outwards and the lower ends inwards; the *claws* grip the slots in the *nosecap* tightly and at the same time draw down the *locking base* firmly against the face of the *nosecap*. The *discharger* is thus fixed to the rifle.

15. It now remains to adjust the *discharger* for use on the particular rifle to which it is fitted; this is done by means of the *adjusting screw*, which is intended to allow for the differences that will be found between rifles as regards the amount of *barrel* projecting through the *nosecap*.

16. Insert the point of the bayonet into the mouth of the *discharger*, engage it in the slots in the *adjusting screw* and screw down in a clockwise direction as far as it will go; finally unscrew one complete turn and remove the bayonet.

17. The unscrewing of the *adjusting screw* is to allow for the expansion of the *rifle barrel* by heat; if this were not done it might be found impossible to fit the *discharger* while the rifle was hot from rapid fire.

18. Once the *discharger* has been fitted to a particular rifle, it may be removed and carried in the haversack until required; no readjustment will be necessary unless the *adjusting screw* is moved in cleaning or in any other way.

Removing discharger.

19. Grip the *nosecap* of the rifle with the left hand and at the same time press inwards with the thumb and forefinger on the lower ends of the *claw levers*. With the right hand, unscrew the *discharger* two or three turns in an anti-clockwise direction; slide the thumb and forefinger of the left hand to the upper ends of the *claw levers*, press inwards and raise the *discharger* off the *nosecap*.

Range setting.

20. All grenades (except signal grenades which are fired at 70° elevation) are fired from this *discharger* at a constant angle of 45° by means of a special ballistite blank cartridge.

21. Variation of range is obtained by opening or closing the *gas port* which allows a greater or less quantity of the gases to escape.

22. The longest range is given with the *port* closed, the shortest with it fully open.

When the *port* is fully closed none of the gases escape, and the full pressure is exerted upon the *gas check* attached to the grenade, which is then projected to the maximum distance.

23. The following table gives the average ranges in still air for various degrees of opening of the *gas port*.

Range.	Opening of port.
80 yards	Fully open.
110 yards	$\frac{1}{4}$ closed.
140 yards	$\frac{1}{2}$ closed.
170 yards	$\frac{3}{4}$ closed.
200 yards	Fully closed.

Each of the quarters may be further divided into three to give variations of 10 yards.

24. To set the range, loosen the *clamping screw*, move the *slide* to the position required and tighten the *clamping screw*.

Note that the measurements must be taken between the edge of the *shutter* and the end of the *port*.

25. For use with the *discharger*, the special blank only is to be used. This cartridge contains a charge of 30 grains of ballistite; it is distinguished from other blank by being blackened for half its length from the mouth. No attempt is

to be made to fire a grenade with ball ammunition; to do so would probably prove disastrous to the firer.

26. Only in great emergency and in self defence at close range should ball ammunition be fired through the empty *discharger*.

Care and cleaning.

27. **Daily cleaning.**—All parts of the *discharger* will be wiped over with an oily rag; the inside of the *discharger*, the *bore* of the *adjusting screw* and the *locking base screw* will be left slightly oily.

28. **Cleaning after firing.**—Remove the *locking base* and unscrew the *adjusting screw*.

Wipe the inside of the *discharger* and the top of the *locking base* with dry rag to remove superficial fouling; then thoroughly oil all surfaces and rub with oily rag until clean; wipe dry and finally re-oil, paying particular attention to the threads of the *locking base* and the *adjusting screw*.

Care must be taken that fouling is removed from the surfaces of the *shutter*.

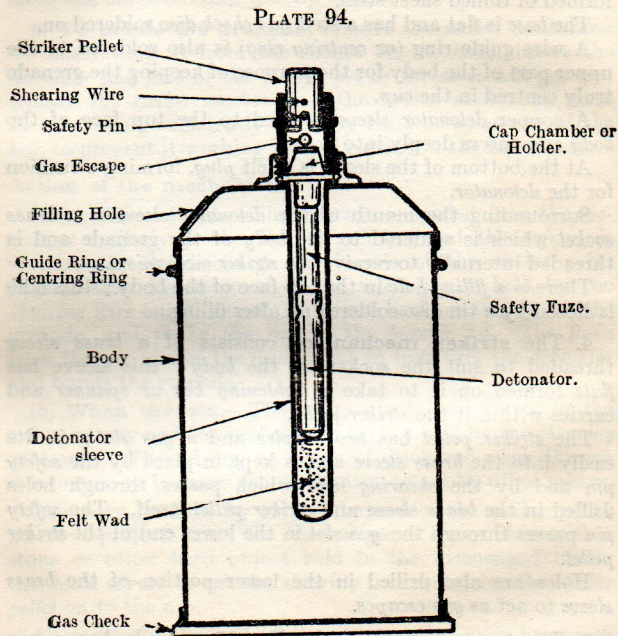
29. *Dischargers* of which the *adjusting screws* have worn loose or which have become burred or eroded at the edge of the *bore* by the gas blast, should be taken to the armourer.

52. The No. 37 W.P. grenade.

{Weight $1\frac{1}{2}$ lbs. Filled white phosphorus. (See Plate 94).}

1. This grenade is used for the production of smoke screens.

2. It may be thrown by hand or fired from the *discharger* by means of the 30 grain ballistite blank cartridge. Its range is the same as that of the No. 36 grenade.



No. 37 W.P. GRENADE.

3. The **body** of the No. 37 grenade is cylindrical and is formed of tinned sheet steel.

The **base** is flat and has a steel *gas check disc* soldered on.

A wire guide ring (or *centring ring*) is also soldered to the upper part of the body for the purpose of keeping the grenade truly centred in the *cap*.

A copper *detonator sleeve* is fixed to the top face of the *body* and enters deeply into it.

At the bottom of the sleeve is a felt *plug*, forming a cushion for the *detonator*.

Surrounding the mouth of the *detonator sleeve* is a *brass socket* which is soldered to the *body* of the grenade and is threaded internally to receive the *striker mechanism*.

There is a *filling hole* in the top face of the *body*; this hole is closed by a tin disc soldered on after filling.

4. The **striker mechanism** consists of a *brass sleeve* threaded to suit the socket on the *body*; this sleeve has *flats* formed on it to take a *tightening key* or *spanner* and carries within it the *striker pellet*.

The *striker pellet* has two *nipples* and a *gas slot*; it fits easily into the *brass sleeve* and is kept in place by the *safety pin* and by the *shearing wire* which passes through holes drilled in the *brass sleeve* and *striker pellet* itself. The *safety pin* passes through the *gas slot* in the lower end of the *striker pellet*.

Holes are also drilled in the lower portion of the *brass sleeve* to act as *gas escapes*.

5. The **burst set** for the No. 37 grenade has a *cap holder* somewhat similar to that of the No. 36 grenade; it also carries a .22 *rimfire cap* with a central *gas escape* covered by a disc of waterproof paper. A 7 secs. length of Nobel's

safety fuze fitted with a "No. 6 Commercial" *detonator* is fixed and shellaced into the *cap holder*.

6. To **prime the grenade**, remove the *striker mechanism* by unscrewing it from the socket on the *body*, insert the *detonator* and *fuze* of the *burst set* as far as it will go, and replace the *striker mechanism*; the *striker mechanism* must be screwed up sufficiently hard, by hand or by means of the *key*, to prevent it working loose if carried in the haversack.

Action of the mechanism.

7. (a) **When fired.**—The grenade is loaded into the *dis-charger* similarly to the No. 36 grenade, and the *safety pin* withdrawn. On discharge the inertia of the *striker pellet* (which, after the removal of the *safety pin* is held by the *shearing wire* only), causes it to set back relatively to the grenade, and strike the *cap* of the *burst set*. The flash from the *cap* ignites the *fuze*, which in turn fires the *detonator* and bursts the grenade.

(b) **When thrown.**—The *safety pin* is withdrawn in the ordinary way and the *striker pellet* is then held by the *shearing wire* only. There being no shock of discharge when thrown it is necessary to cause the mechanism to act by other means.

This may be done by giving the end of the *striker pellet*, where it projects from the *brass sleeve*, a sharp blow with a stone or other hard object held in the disengaged hand; this blow serves to cut the *shearing wire* and drive the *striker pellet* on to the *cap*.

Alternatively the end of the *striker pellet* may be struck against the heel of the boot or *butt plate* of the rifle. The *striker pellet* must be struck hard or the mechanism may fail to function.

Although the *fuze* of the *burster set* gives a delay of 7 seconds, the grenade should be thrown without waste of time.

Marking and packing.

8. The *live* grenade No. 37 is painted *black* and has the *usual red* band indicating a filled grenade. They are packed in wooden boxes containing 12 grenades; the boxes are painted light green and are marked with the designation of the contents. A packer's note is enclosed.

9. *Dummy* grenades are left the *natural tin* colour or are painted *white* and have the *filling hole* open; they are similarly packed to the live grenades, but the boxes are painted *white*.

10. *Live burster sets* are packed 24 in a *red tin box*. These boxes are of a different shape to those containing *igniter sets* for the No. 36 grenade. This facilitates identification.

11. *Dummy burster sets* have the detonator *nickel-plated* to distinguish them from the live ones, which are copper coloured. The closed end of the *detonator* is also drilled through. They are packed in a white tin box.

12. *Blank* for the No. 37 grenade is the same as for the No. 36, *i.e.*, the 30 grain ballistite.

53. Throwing and firing grenade No. 37.

1. Smoke grenades should rarely be thrown by hand.

2. These grenades are dangerous to anyone within 20 yards of the point of burst.

Precautions.

3. Whenever these grenades are handled, the first safety precaution will be carried out by removing the *striker mechanism* to ascertain that the grenade is safe.

4. Before priming, grenades will be inspected for signs of corrosion; a badly corroded *body* might cause the grenade to break up on firing owing to weakening of the *case*.

5. The *detonator sleeve* will also be inspected to see that there is no obstruction preventing the free entry of the *burster set*.

6. The *striker mechanism* will be inspected for any defects which might interfere with its proper working; note the *gas slot* and *gas escape*.

7. *Burster sets* will be inspected and prepared in the same way as *igniter sets* for the No. 36; note the *gas escapes* and their waterproof coverings.

8. Blind smoke grenades will be destroyed where they lie by blowing up in the same way as H.E. grenades. Blind grenades which are found to be giving off smoke should be approached with caution as there is a danger that the heat generated by the burning of the phosphorus may cause the *detonator* to act. The *burster set* should not be removed from blind smoke grenades.

If any doubt exists as to the advisability of approaching such a blind, it will be kept under observation until it either destroys itself (which is probable) or until it can be otherwise disposed of.

9. If smoke grenades are used on ground (such as a battle firing or other range) where ball ammunition can be safely used, such blinds can best be destroyed by firing at them with a rifle from a distance of about 40 yards; a single bullet penetrating the case will usually bring about the destruction of the grenade.

10. When destroying smoke grenades no one should be within 40 yards of the explosion. Anyone present should be on the windward side of the blind in order that particles of burning phosphorus may not be carried towards them. Likewise, the demolition charge should be so placed that fragments of the grenade will be blown away from them.

11. Owing to the fact that white phosphorus ignites on exposure to the air and the consequent danger of fire due to leaking or damaged grenades, smoke grenades carried on board ship will be treated as deck cargo.

NOTES FOR INSTRUCTORS.

1. Difficulty may be experienced in making clear the action of the *striker mechanism* when the grenade is fired from a rifle. An example of inertia with which most men are familiar is that of a person standing in a tramcar that starts suddenly; in the case of the grenade the *striker pellet* corresponds to the person, the grenade to the tramcar. The jerk given when the grenade is fired is so great that the *shearing wire* holding the *striker pellet* is broken and the *cap of the burster set* comes into collision with the *nipples* of the *striker* and is fired.

Kit required.

- 1 rifle.
- 1 dummy, No. 37.
- 1 dummy ballistite blank.
- 1 dummy burster set, No. 37.

54. Signal grenades.

1. Signal grenades are used as a means of communicating information by lights or smoke of various colours or combinations of colours; the meaning of any particular combination is a matter to be arranged beforehand. They may be used to indicate the position reached by a body of troops, as a signal for the artillery or other covering fire to lift off a locality about to be assaulted, as a call for artillery support, or as a warning of hostile counter attack, &c. Generally speaking, smoke signals are for use by day and light signals by night, *but the latest patterns*, using powerful lights, are for use by either day or night.

Grenade, No. 42 day signal. (See Plate 96.)

2. This grenade is the first of a series designed for use with the *discharger*.

The *body* consists of a rolled paper cylinder closed at the base by a wood block and at the head by a dished tinplate cap. A *supporting collar* of black or tinned plate which fits the mouth of the *discharger* is secured round the *body* near the head. The *body* contains a coloured *smoke candle* (yellow, purple, red or blue) and a *parachute*. The wood block on the base is covered on the outside by a *brass cap* to prevent the wood being burnt by the flash of the propellant, and is further strengthened in the centre by a steel disc fixed lengthwise through the cap and wood block to contain the *fuze*; this *fuze* is ignited by the flash from the propellant, and conveys the flame to the *opening charge* contained in the grenade. The *opening charge* consists of a thin layer of gunpowder gummed to the underside of a felt wad; five strands

of *quickmatch* (cotton wick impregnated with mealed gunpowder) are led through a central hole in the felt wad and are splayed out on the top side.

3. The *smoke candle* rests upon the top of the felt wad in contact with the *quickmatch*. The yellow, purple and red *candles* consist of a rolled paper case containing the smoke composition, closed at each end by a wood plug having a central hole through which *quickmatch* is passed up through the centre of the composition. One end of the *candle* is primed and covered with paper, and the two wood plugs at the ends are connected by a binding wire.

The blue *candle* is similarly made up except that the *quickmatch* is not passed up through the centre of the candle but down the side, and there is no priming at one end.

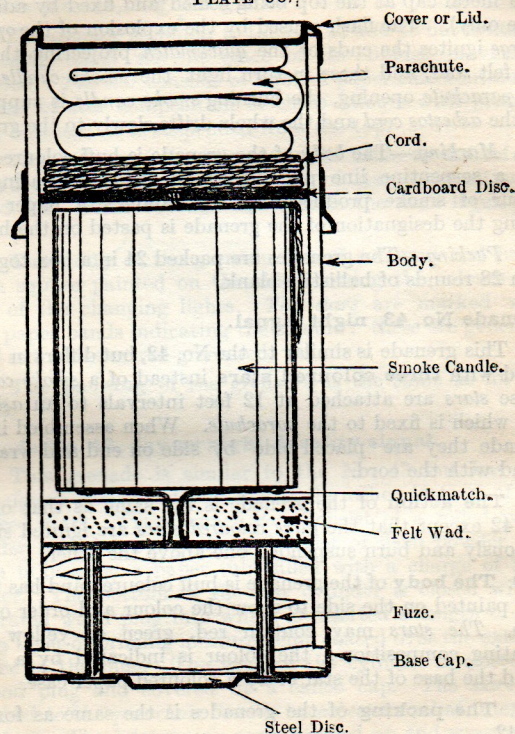
4. A 3 ft. length of *asbestos* or other suitable *cord* is bound round the body of the *candle* and attached to the *parachute* so that the *candle* will be suspended horizontally. A cardboard disc is threaded on this *cord* so that it comes between the *candle* and the *parachute* when assembled in the grenade.

The *parachute*, which is folded and assembled in the top of the grenade, is octagonal in shape and made of Japanese or other suitable paper; strong thread is secured to each corner and the ends brought together and tied to the *asbestos cord*.

5. *Action of the grenade.*—The grenade is fired from the *discharger* at an angle of 70° by means of the usual 30 grain ballistite blank cartridge.

On the rifle being fired, the flash from the propellant blank cartridge ignites the ends of the *fuzes* in the base of the grenade. The *fuzes* give a delay of 3 seconds, which permits the grenade to reach its greatest height; the *opening charge* then explodes and drives out the contents of the grenade

PLATE 96.



No. 42 SIGNAL GRENADE.

(the metal cap at the top being sealed and fixed by adhesive tape only). The flash caused by the explosion of the *opening charge* ignites the ends of the *quickmatch* projecting through the felt wad, and these in turn light the *smoke candle*. On the *parachute* opening, the burning *smoke candle* is supported by the *asbestos cord* and the whole drifts slowly to the ground.

6. *Marking*.—The *body* of the grenade is buff coloured and has a serpentine line painted on the slide indicating the colour of smoke produced by the candle; a paper label giving the designation of the grenade is pasted on the head.

7. *Packing*.—The grenades are packed 24 in a box together with 28 rounds of ballistite blank.

Grenade No. 43, night signal.

8. This grenade is similar to the No. 42, but differs in being fitted with **three coloured stars** instead of a *smoke candle*. These *stars* are attached at 12 feet intervals to an *asbestos cord* which is fixed to the *parachute*. When assembled in the grenade they are placed side by side on end and wrapped round with the cord.

9. **The action** of the grenade is the same as that of the No. 42 except that the *three coloured stars* are ignited simultaneously and burn suspended one above the other.

10. **The body** of the grenade is buff coloured and has three dots painted on the side to show the colour and order of the stars. The *stars* may contain red, green or yellow illuminating composition; the colour is indicated by a band round the base of the star or by a coloured paper case.

11. **The packing** of the grenades is the same as for the No. 42.

Grenade No. 45, night signal.

12. The grenade is similar to the No. 42 and 43 but contains a *changing colour star* in place of the fillings previously described. The *star* consists of a rolled paper case containing a charge of star composition of three colours with priming at the bottom; it is suspended from the top.

13. **The action** of the grenade is the same as that of the Nos. 42 and 43. The bottom layer of star composition is ignited first, burns through and ignites the next layer, and so on.

14. **The body** of the grenade is buff coloured and has a 2-inch square painted on the side showing the colours and order of the changing lights. The *stars* are marked with three paper bands indicating the colours; these are generally white-red-white or red-green-red.

15. **The packing** of the grenades is the same as for the No. 42.

Grenade No. 48, day or night, locality signal.

16. This grenade is similar to the No. 43 but has *four flash signals* suspended one above the other instead of the coloured stars. These *signal stars* consist of a rolled paper cylinder containing a perforated pellet of flash powder into which is inserted a paper tube filled with a charge of F.G. powder. The bottom of the star cylinder is closed with a perforated wood plug into which is inserted a length of *time fuze*, a layer of priming mixture being coated over the exterior surface of the plug. The head of the cylinder is closed by a wood plug and covered by a calico cap. The *stars* are attached to the *parachute threads* by *asbestos cord* at intervals of 2 feet. The intervening cord is coiled up and wrapped in

white paper, the coils being packed into the space between the signals on assembly.

17. **The action** of the grenade is the same as the others of the series except that there is a short delay between the opening of the grenade and the occurrence of the flashes.

18. **The body** of the grenade is buff coloured and a descriptive label is attached to the tinplate cap of the head.

19. **The packing** of the grenades is the same as for the No. 42.

Grenade No. 52, day or night signal.

20. This grenade is similar to the No. 43, but has three *white illuminating stars* instead of the three coloured ones.

The action is the same.

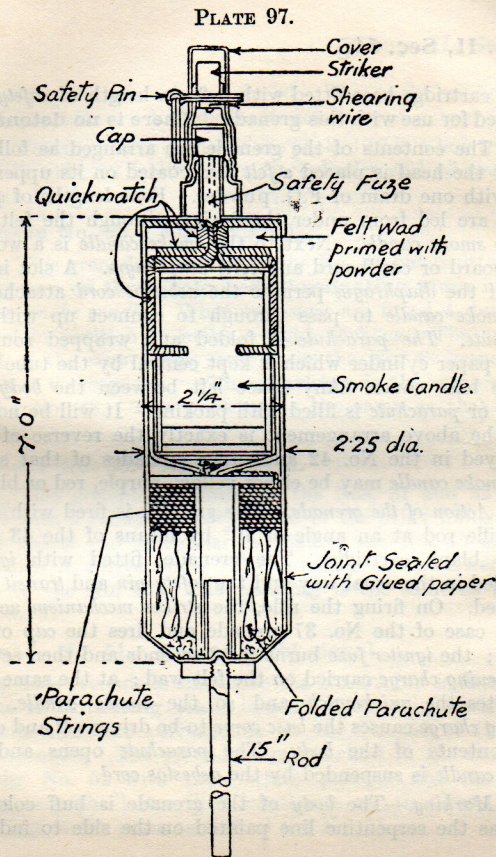
The grenades are similarly marked with three white patches and the words "day and night" stencilled on the body. The **packing** is the same as that of other grenades of this series.

RODDED SIGNAL GRENADES.

Grenade No. 31, day signal. (See Plate 97).

21. This grenade is the first of an older series designed for use with rifle rods. *The body* consists of a cylinder of tinned plate with a tinplate lid soldered on. This lid is fitted with a threaded boss to take the *striker* mechanism. *The base cover* of the grenade is dished and is a sliding fit on the body; a metal tube is soldered to the interior to form a centring piece and a steel disc screwed to take a 15-inch rifle rod is soldered to the under surface.

22. **The striker mechanism** is similar to that used on the No. 37 W.P. grenade. An *igniter* consisting of a



RODDED GRENADE No. 31 SIGNAL. Scale $\frac{1}{4}$.

·410" cartridge base fitted with a 3 sec. length of *safety fuze* is issued for use with this grenade. **There is no detonator.**

23. The contents of the grenade are arranged as follows: Under the head is placed a *felt wad* coated on its upper surface with one dram of F.G. powder. Four lengths of *quick-march* are led from under the *igniter*, through the felt wad to the *smoke candle*. Next to the *smoke candle* is a wooden (cardboard or cardboard and felt) *diaphragm*. A slot in the side of the *diaphragm* permits the *asbestos cord* attached to the *smoke candle* to pass through to connect up with the *parachute*. The *parachute* is folded and wrapped round a rolled paper cylinder which is kept central by the tube fixed in the base cover. Any space left between the *body* and *candle* or *parachute* is filled with packing. It will be noticed that the above arrangement is exactly the reverse of that employed in the No. 42 and other grenades of that series. The *smoke candle* may be either yellow, purple, red or blue.

24. *Action of the grenade.*—The grenade is fired with a 15-inch rifle rod at an angle of 70° by means of the 43 *grain cordite blank cartridge*. The grenade, fitted with *igniter*, is loaded in the usual way and the *safety pin* and *transit cover* removed. On firing the rifle, the *striker mechanism* acts as in the case of the No. 37 grenade and fires the *cap* of the *igniter*; the *igniter fuze* burns for 3 seconds and then sets off the *opening charge* carried on the felt wad; at the same time it ignites the *quickmatch* and so the *smoke candle*. The *opening charge* causes the *base cover* to be driven off and ejects the contents of the *body*. The *parachute* opens and the *smoke candle* is suspended by the *asbestos cord*.

25. *Marking.*—The *body* of the grenade is buff coloured and has the serpentine line painted on the side to indicate

the colour of the smoke produced. The *smoke candle* has a patch painted on it to indicate its colour.

26. *Packing.*—The grenades are packed 12 in a box together with 12 rods, 12 igniters in a tin cylinder and 13 rounds of cordite blank.

Grenade No. 32. Night signal.

27. This grenade is similar to the No. 31 but is fitted with either **two or three coloured illuminating stars** in place of the *smoke candle*. When two *stars* are fitted, a dummy is placed in position to make a tight package. The arrangement of the *stars* is the same as in the No. 43 grenade, to which it corresponds. **The marking** is the same as that of the No. 43. **The packing** is the same as that of the No. 31.

Grenade No. 38. Night signal.

28. This grenade is similar to the Nos. 31 and 32 but is fitted with a *changing light* instead of the other fillings: the three colour *star* is similar to that of the No. 45 grenade, to which it corresponds. The grenades are **marked** similarly to the No. 45. **The packing** is the same as that of the No. 31.

Grenade No. 51. Day or night signal.

29. This grenade is similar to the No. 32, but is fitted with **white illuminating stars** instead of coloured *stars*. This grenade therefore corresponds to the No. 52 of the non-rodded series. The grenades are **marked** in the same way as the No. 52 with three white patches, and the words "day or night" stencilled lengthwise on the body. **The packing** is the same as that of the No. 31.

Inspection and preparation.

30. *Grenades Nos. 42, 43, 45, 48 and 52.*—Signal grenades are very susceptible to the effects of damp and inspection therefore consists chiefly in seeing that the various seals are intact.

- i. Examine the *base* of the grenade and see that the ends of the *fuzes* are covered with transparent paper.
- ii. Examine the *body* of the grenade to see that it is not crushed or perforated.
- iii. Examine the *head* of the grenade to see that the *cap* is properly sealed with adhesive tape.

Grenades of this series require no preparation before use.

31. *Grenades Nos. 31, 32, 38 and 51.*—

- i. Unscrew the *striker mechanism* and see that the top of the *screwed boss* is sealed with a damp-proof paper disc.
- ii. Examine the *body* of the grenade to see that it is not crushed or perforated.
- iii. See that the joint between *base cover* and *body* is sealed with a damp-proof paper strip.
- iv. Examine the *striker mechanism* to see that it is in working order.

Examination of igniters and rifle rods.

- 32.—i. See that the lid of the box containing the *igniters* is sealed with adhesive tape.
- ii. See that the *fuze* is properly fixed in the *cap holder* and that the *gas escape holes* are sealed with a strip of waterproof paper.
- iii. See that the *rifle rods* are straight, clean and free from rust.

Preparation. (Rodded grenades.)

- 33.—i. Unscrew the *striker mechanism*, remove paper seal from *boss*, insert *igniter* and replace *striker mechanism*.
- ii. Fit *rifle rod*.

NOTES FOR INSTRUCTORS.

1. The grenades of the *non-rodded* series should be taught first; it is sufficient to teach the construction of one grenade of the series and then to bring out the points in which the others differ from it, *i.e.*, the nature of the signals.

2. The grenades of the *rodded* series can then be taught with reference to what has already been learned.

3. Signal grenades, not being of dangerously explosive nature, may be used to illustrate the lesson, but at the same time it should be borne in mind that the contents are *very inflammable* and all precautions must be taken.

4. If preferred, dummies can be made from recovered portions of grenades which have been fired. In preparing dummies, portions of the body may be cut away to show the contents in positions; if this is not done the grenades should be stripped.

5. Demonstrations of firing should be given. If demonstrations are given when a wind is blowing, grenades should be fired *down wind* in order that the *body*, etc., may not be blown back on to the spectators.

Kit required.

- 1 non-rodded Signal Grenade (or dummy).
- 1 rodded Signal Grenade (or dummy).
- 1 *igniter*.

(B 27/9)q

55. *Ballistite and cordite blank.*

Cartridge, S.A., .303-inch, rifle grenade, 30 grain ballistite, Mk. I/L.

1. This cartridge is for use with grenades fired from the *discharger*; it will **never** be used with **rodded grenades**. It consists of a Mk. VII *cartridge case* loaded with 30 grains of sporting ballistite. The space in the upper part of the case is packed with cotton wool and mouth closed by a paper or cardboard disc (or by a cardboard cup) secured by shellac varnish. For distinguishing purposes the case is blackened for *half its length* from the mouth.

Cartridge, S.A., .303-inch, rifle grenades, 43 grain cordite, M.D., Mk. II/L.

2. This cartridge is for use with grenades fired by means of *rifle rods*; it is **unsuitable** for use with the *discharger*, as it will not give sufficient range. It consists of a Mk. VII *cartridge case* loaded with a charge of 43 grains of a special size of cordite, with a tuft of guncotton yarn (1 grain) at each end of the bundle of strands. The mouth of the case is closed by a cardboard disc secured with shellac varnish. For distinguishing purposes the case is blackened *all over*.

NOTES FOR INSTRUCTORS.

These descriptions are for information only. They will not form part of the instruction of recruits or trained men.

56. *Rifles, E. Y. (Emergency).*

1. In order to guard against failures which may occur with rifles used for firing grenades, certain measures have been taken to strengthen them.

2. These measures consist in fixing a wood *screw* through the fore end a short distance in front of the *magazine* to overcome the tendency of the wood to split at this point, and in binding the *fore end* for a distance of 5 inches below the *nosecap* with whipcord or copper wire.

3. S.M.L.E. E.Y. rifles so strengthened are issued to **units for use with grenades**.

57. *Precautions against gas.*

1. **Hand and rifle grenades.**—In the event of a hostile gas attack unboxed grenades should be kept covered. All *safety pins* and *working parts*, especially those made of brass, should be kept oiled to prevent their seizing from corrosion by the gas.

2. All hand and rifle grenades exposed to gas should have their *safety pins* and *working parts* cleaned and re-oiled.

3. **Grenade dischargers.**—*Dischargers* will be cleaned and re-oiled, paying particular attention to the threads of the *locking base* and the *shutter*.

CHAPTER III.

WEBLEY REVOLVER TRAINING.

GENERAL INSTRUCTIONS.

58. General.

1. Officers and a certain proportion of other ranks are armed with the revolver; all who are armed with the revolver must attain a standard sufficient to ensure that they will use it effectively under service conditions.

2. The method of shooting is to fire instinctively and instantaneously by sense of direction. Effective shooting with the revolver in war can best be accomplished by this method at the medium and close ranges at which the revolver is usually employed, it being the instinctive action of a man when firing a revolver in self-defence, and one to which he will revert when suddenly confronted by an enemy.

3. For service conditions the quickness with which one or more effective shots can be fired is more important than the close grouping of the shots. The sense of direction method combines this quickness with sufficient accuracy. An efficient shot should be able to place a bullet in a 16-inch by 12-inch rectangle on a figure target at 10 yards in one second.

4. Shooting by sense of direction is the bedrock of the system of training for service shooting, whether the revolver

be fired with the use of the *sights*, or without the use of the *sights*. Training being progressive, the latter is the outcome of the former as a result of speed obtained by practice.

59. Characteristics.

1. The characteristics of the revolver are :—

- (a) That it is a one-handed weapon, used without support to hand or arm.
- (b) The short *sight base*.
- (c) The short *barrel*.
- (d) The stopping power of the bullet.
- (e) The high rate of fire.

2. From these characteristics are deduced the following conclusions :—

- (a) i. The revolver being a one-handed weapon, is relatively unsuitable for firing by deliberate aim. The *trigger* pressing must be adapted to fire the shot during the motion of the weapon without the necessity of bringing the weapon to rest for deliberate aim.
- ii. As there is no support to the hand or arm, the grip and *trigger* release are of increased importance.
- iii. The revolver should be capable of being used with either hand; all manipulative movements should be performed as far as possible by the firing hand alone.
- (b) Owing to the short *sight base* the range of the weapon for practical purposes is restricted; having regard also to the necessity for rapid shooting, a close grouping of the shots will not be insisted upon.

- (c) i. The short *barrel* makes the weapon exceptionally handy, facilitating a quick change of target and fire at surprise and moving targets.
- ii. The short *barrel* renders the weapon dangerous if carelessly handled; the revolver can be so easily pointed and discharged in a wrong direction that the need of strict training discipline is emphasised.
- (d) The stopping power of the bullet gives the weapon special advantages for self-defence and for close quarter fighting.
- (e) The high rate of fire, combined with the handiness gained by the short *barrel*, emphasise the value of the weapon for dealing with surprise and moving targets such as those met with in close quarter fighting.

3. The sum of all these deductions is that the revolver is essentially a weapon for quickness of fire. The system of training and all range practices are therefore based on this principle.

60. The system of training.

1. The system of training, based upon the characteristics of the quickness of fire and of the weapon being suitable for firing during movement without being brought to rest for a deliberate fixed aim, is divided into two stages:—

(a) Preliminary accuracy gained by—

- i. Correct grip or holding.
- ii. Development of sense of direction.
- iii. Correct *trigger* release.

- (b) The development of quickness, leading up to shooting by sense of direction alone (without the use of the *sights* for firing at close ranges).

Correct grip or holding.

2. The instinctive power of the eye to control the pointing of the hand is the basis of a correct grip. The correct grip ensures that the *sights* of the weapon (*i.e.*, alignment of the *barrel*) come up automatically into the line of vision when the weapon is raised quickly to fire at a mark upon which the eye is fixed.

3. It should first be ascertained, in the case of each individual, which eye controls the line of vision.

4. After the master eye has been found, the hand must be fitted to the revolver, so that on raising the hand and the revolver from a position at 45 degrees to the ground up into the line of vision, the revolver *sights* are caused to come into automatic alignment with the line of vision.

5. Points to be observed in fitting the hand to the revolver are (see Figs. 10 and 11):—

- (a) The first joint of the fore finger must be on the lower part of the *trigger*.
- (b) The three remaining fingers clasp the *butt*, the second finger close up behind the *trigger guard*, and the second joint of this finger beyond the left side of the *trigger guard*; the inside surface of these three fingers and of the hand to be in close contact with the *butt*.
- (c) The inner side of the part of the thumb between its first and second joints must be firmly in contact with the top of the left *stock* or *shoulder* of the *butt*,

with the thumb fully extended or bent at the first joint, according to its individual size. The tip of the thumb must not be in contact with any part of the revolver.

(d) The hand and fingers on the *butt* should maintain a firm, but not excessive grip. The pressure of the thumb should balance that of the *trigger* finger. It is important to grip the revolver always in the same way. The correct grip should be practised until it is learnt by sense of touch.

(e) The arm and wrist are kept straight but not rigid.

6. From these directions it will be realised that the size of the *butt* of the revolver in relation to the firer's hand is of importance. If the correct grip can be taken without the tips of the second and third fingers pressing against the ball of the thumb, it is proof that the revolver fit the hand.

7. For the word "Left," substitute "Right," when applying these directions for the left hand.

8. **The development of sense of direction.**—This is the development of the co-operation between the eye and arm muscles to ensure the quick and accurate alignment of the *sights* (or *barrel*, when *sights* are not used), and is gained by muscle exercises.

9. Correct trigger release.

- (a) Ensures that the release of the trigger does not disturb the true path of the weapon by lateral pulling, jerking or flinching.
- (b) Ensures that the hammer is timed to fall at the precise moment at which the *sights* intercept the

line of sight from eye to mark as the weapon is in its upward path.

10. It should be noted that the *trigger* pressure begins and increases during the upward path of the revolver, and finishes by firing the shot simultaneously with the *sights* intercepting the line of sight.

FIG. 10.

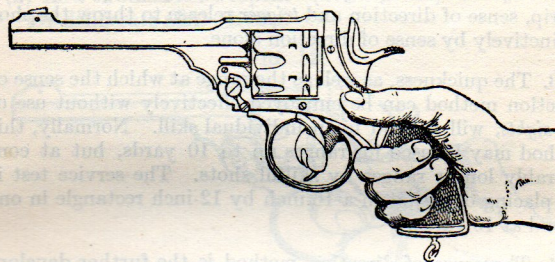
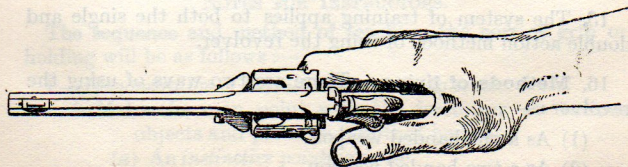


FIG. 11.



11. **The second stage—The development of rapidity.**—The three preliminaries of *correct grip, sense of direction* and *trigger pressing* are combined together for firing—the revolver will be fired during motion; proficiency in shooting will depend upon the degree of rapidity (combined with accuracy) of raising the weapon to fire, together with skill in *trigger pressing*.

12. Training will instil the habit of dispensing with the use of the *sights* at close range and, instead, relying upon training in grip, sense of direction and *trigger release* to throw the shot instinctively by sense of direction alone.

13. The quickness, as well as the range at which the sense of direction method can be employed effectively without use of the *sights*, will depend upon individual skill. Normally, this method may be used for ranges up to 10 yards, but at considerably longer ranges by skilful shots. The service test is the placing of a shot in a 16-inch by 12-inch rectangle in one second at 10 yards.

14. The sense of direction method is the further development of preliminary training in firing with the use of the *sights*. The method of firing is the same, rapidity only being increased.

15. The system of training applies to both the single and double action methods of using the revolver.

16. **Methods of firing.**—There are two ways of using the revolver :—

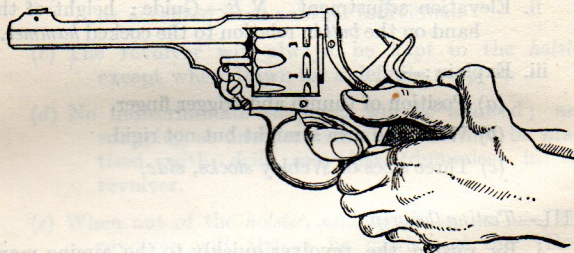
- (1) As a one-handed weapon.
- (2) As a two-handed weapon.

(1) As a one-handed weapon the revolver may be fired in two ways :—

- (a) By the single action—
 - i. With use of the *sights*.
 - ii. Without use of the *sights*.
- (b) By the double action—
 - i. With use of the *sights*.
 - ii. Without use of the *sights*.

(2) As a two-handed weapon. (See Fig. 12.)
By deliberate aim. Lying.

FIG. 12.



NOTES FOR INSTRUCTORS.

The sequence and method of teaching the correct grip or holding will be as follows :—

- I.—*Demonstration of the instinctive pointing sense.*
 - i. Make the man point with the forefinger at various objects and prove to him that he has—
 - (a) An *instinctive pointing sense*.
 - (b) A *master eye* or central vision.

- ii. Explain how these two faculties are used in revolver shooting to allow the revolver to be fired by an *instinctive aim* controlled by *sense of direction* and not by deliberate aim.

II.—Fitting the hand to the revolver.

(Explain the two adjustments of the hand and arriving by trial at correct fitting.)

- i. Direction adjustment. *N.B.*—Guide: knuckles at inside edge of *trigger guard*.
- ii. Elevation adjustment. *N.B.*—Guide: height of the hand on the *butt* in relation to the cocked *hammer*.
- iii. Explain :—
 - (a) Position of thumb and trigger finger.
 - (b) Wrist and arm straight but not rigid.
 - (c) Three sizes of Webley *stocks, side*.

III.—Testing the grip.

- i. By raising the revolver quickly to the aiming mark and testing automatic alignment.
- ii. Grip by sense of touch (drawing the revolver from the holster).

PRELIMINARY EMPTY REVOLVER PRACTICE.

61. General.

1. Safety precautions :—

- (a) The revolver will always be *proved* (i.e., broken open and inspected) when drawn from the holster or picked up (except in battle).
- (b) The revolver will always be proved when given to or accepted from another individual.
- (c) The revolver will always be kept in the *holster* except when drawn for a definite purpose.
- (d) No indiscriminate snapping will be allowed; and snapping at another man's eye will not be practised with *drill cartridges* (dummies) in the revolver.
- (e) When out of the *holster*, and not in actual use, the revolver will always be carried at the "Rest Position" and not hanging at the side pointing to the ground.
- (f) The revolver will never be opened or closed with the *hammer* cocked.

2. **Tests.**—Before firing ball ammunition, those undergoing instruction should be tested for proficiency in handling the empty revolver.

The test should be carried out at a distance of four yards between firer and instructor, the mark being an aiming disc with sight hole held to the instructor's eye.

Five out of six shots should be accurate.

For single or double action practices using the *sights*, two seconds for each shot will be the time limit. In practices by sense of direction alone, the time limit will be one second, a latitude of aim being allowed proportionate to the range, the 16-in. by 12-in. rectangle being the service test at 10 yards.

3. **Empty revolver training** will comprise :—

- i. Correct grip instruction.
- ii. Trigger pressing instruction.
- iii. Firing exercises.
- iv. Muscle exercises.

62. *Trigger pressing instruction.*

1. **Single action.**

- (a) With the *hammer* cocked, the revolver should be fired by the squeeze of the whole hand, including a pressure of the fingers on the *butt* and a downward and forward pressure of the thumb.
- (b) This uniform squeeze of the whole hand will be applied during the upward lift of the revolver to the line of sight; and the increasing pressure of the hand will be so regulated that the shot is fired at the same moment that the *sights* intercept the line of sight from the eye to the mark.

2. The *sights* must never be deliberately aligned with the revolver stationary.

3. The pressure of the hand and the release of the *trigger* must be applied so that the *hammer* falls without disturbing or checking the true path of the revolver.

4. The revolver will be cocked by the thumb of the firing hand.

5. **Double action.**

(a) The method of *trigger* pressing will be the same as in the single action except that the revolver will be kept near to the line of vision without being raised and lowered as in the single action.

(b) The *trigger* will be pressed by a firm, even squeeze of the whole hand; and the timing of the *trigger* release be so regulated with the recoil caused by the preceding shot that the *hammer* falls at the same moment that the *sights* return to and intercept the line of vision.

6. When proficiency is obtained in the single and double action methods, the use of the *sights* of the revolver may be dispensed with and the firing done by sense of direction alone, the *trigger* release being synchronised with the *barrel* instead of with the *sights* intercepting the line of vision.

7. In both single and double action the *trigger* finger must release the *trigger* immediately and completely after firing the shot.

8. In preliminary instruction the arm may be rested on a table or against the hip in the "Rest position."

NOTES FOR INSTRUCTORS.

The sequence of teaching trigger pressing, single and double action, will be:—

- I. *Explanation*.—Importance (viz., characteristics).
- II. *First stage*.—The correct “squeeze.” Pressure of whole hand and all fingers—no independent action of first finger. Explanation of—

- (a) Pressure of first finger in line of *barrel*.
- (b) Inwards and downwards pressure of thumb.
- (c) Squeeze of the second, third and little fingers.

Note.—The first stage is carried out with the revolver in the “rest” position.

- III. *Second stage*.—The “timing” of the trigger release. Explanation—the squeeze learnt in the first stage (applied during the motion of the revolver) is timed to fire the shot at the same moment that the revolver intercepts the line of vision.

N.B.—The *sights* are used as an aid during preliminary training.

- IV. Instructor demonstrates and section practise.

SPECIAL NOTES.

1. The instructor watches for and checks the following faults:—
 - i. Snatching the *trigger*—causing low inwards shooting.
 - ii. Pressing out of line of *barrel*—causing inwards or downwards shooting.
 - iii. Flinching and shutting the eyes whilst firing ball—causing scattered shooting.

- iv. Anticipating shock of discharge and pushing forward when firing ball—causing low scattered shooting.
- v. Incorrect timing—causing a vertically elongated group (allowed for to a certain extent by the shape of the man target and rectangle scoring on the targets).

2. When a consistent fault of low inwards shooting occurs it is generally caused by flinching and *trigger* snatching combined.

3. The trigger finger must release the *trigger* fully and completely after each shot, or missfires will occur due to the *cylinder* failing to revolve.

63. *Firing exercises.*

1. Strict regard to range discipline, and to all details of positions and motions, as detailed in the range drill, must be observed. The instructions referring to the method which is being employed will be followed.

2. The attention of the firer must be concentrated on the mark not on the revolver, at the moment of firing.

3. The common fault of flinching is primarily caused by the firer's attention being on the revolver instead of on the mark at the moment of firing.

4. The point of aim is the centre of the waistline whenever possible or at a selected mark two-thirds down from the top of the target and central. The eye should be focussed sharply on the point of aim when firing.

5. When firing at a crossing target, aim should be taken at or near the front edge of the target according to its range and

speed. The movement of the body should be from the waist and not from the arm.

6. Firing exercises will be carried out for six shots at a time, and not for an indefinite number of consecutive shots, in order to obviate the fatigue of the muscles, which will lead to faulty trigger pressing and also in order to inculcate the instinctive habit of counting the rounds fired.

7. The breathing will not be restrained except in the deliberate aim, lying.

8. The disengaged eye may be closed in firing with the use of the *sights*. In firing by sense of direction without use of the *sights*, both eyes will be kept open and the master eye will determine the line of vision.

Firing exercise No. 1. Single action.

9. Adopt the "ready" position, with the eyes on the mark, arm fully extended. Raise the revolver in the vertical plane, cocking the *hammer* by the thumb during the first part of the upward motion, then apply the squeeze of the hand so that the *hammer* falls at the same moment that the *sights* of the revolver intercept the line of the sight to the mark.

10. The fully extended arm and the revolver should be raised as one from the shoulder.

11. If firing consecutive shots, the revolver will be lowered about one foot only, immediately after firing. The *hammer* will be cocked each time by the thumb as quickly as possible after firing, using the motion of the revolver returning to the line of vision to assist in the cocking.

Firing Exercise No. 2. Single Action : Sense of Direction.

12. Performed as for No. 1 Firing Exercise, except that the *sights* of the weapon will not be used, but the timing of the trigger release will be synchronised with the revolver rising to the line of vision.

Firing Exercise No. 3. Double Action.

13. From the "ready" position. Quickly raise the revolver, applying the pressure of the hand so that the *hammer* is caused to fall at the same moment that the *sights* of the revolver intercept the line of sight to the mark.

14. The arm and revolver will be kept in near alignment to the line of sight for the five subsequent shots, and shots will be fired by regulating the continuous pressure on the trigger so that the *hammer* is caused to fall each time the *sights* of the revolver return to and intercept the line of sight.

Firing Exercise No. 4. Double Action : Sense of Direction.

15. Performed as for No. 3 Firing Exercise except that the use of the *sights* will be dispensed with, and the trigger release will be synchronised with the revolver returning to the line of vision.

Firing Exercise No. 5. Deliberate Aim : Lying.

16. From the "rest" position with the revolver in the right hand, bend the knees and place the left hand on the ground; lie on the stomach, the body and the legs straight behind the line of fire, and the chest raised and supported by the elbows.

17. Hold the revolver in the correct grip with the revolver hand. Place the first joint of the thumb of the other hand over the knuckle of the second thumb joint of the revolver hand. Close the four fingers of the outside hand over the three fingers on the butt (*see* Fig. 12).

18. Cock the *hammer* with the thumb of the outside hand ; raise the revolver, keeping it as far forward as possible, without strain. Take the first pressure, align the *sights* on the mark and release the *trigger* by a uniform pressure of both hands.

General.

19. In Nos. 1, 3, and 5 exercises the aiming mark may be either an aiming disc or another man's eye.

20. In Nos. 2 and 4 exercises the aiming mark will always be another man's eye, the man adopting a kneeling position. Attention will be paid to the instructions concerning the habit of "proving" the revolver on such occasions.

NOTES FOR INSTRUCTORS.

Sequence.

1. Detail the firing exercise, demonstrate, allow the squad to practise. Omit all detail as soon as the squad understand the exercise.

2. Work the squad up from individual time to timed practice controlled by the whistle, gradually working up to standard times as for Tests (*see* Sec. 61, 2).

SPECIAL NOTES.

1. Revolver shooting is a matter of practice. The principles of shooting are simple, and are easily and quickly explained. Instructors in conducting training should be brief with explanation and devote the longest possible time to practical work—that is actual practice at firing and muscle exercises which train the man in the manipulation of the weapon.

2. Instructors will conduct firing and muscle exercises in much the same manner as physical training exercises, but specially applied to the training of the instinctive pointing sense and the training of the muscles of hand and arm for the quick and accurate manipulation of the weapon.

3. The aiming post, Plate 121 (page 387), will always be used (except for firing exercises Nos. 2 and 4).

4. Avoid keeping the squad waiting while in the "ready" position.

5. Keep a strict watch over the "safety precautions" during the conduct of firing exercises, as it is at this time that the instinctive habits of correct handling in accordance with the safety precautions are instilled.

64. The muscle exercises.

1. The following exercises should be performed to develop those muscles which affect the control of the revolver. They should be practised systematically ; but they should not be carried to the point of undue fatigue.

Words of Command.

2. First Practice.

- "Muscle Exercise," On the command "Muscle Exercise—First Practice—One," push out the arms in line with the shoulders, fingers wide apart, all muscles of the hands braced, knuckles uppermost.
- "First Practice." "One."
- "Two." Slowly turn the hands over, palms uppermost.
- "Three." Slowly clench the fists, bracing all the muscles of the hands and arms.
- "Four." Smartly pull the arms back, wrists near to the hips.
- "Steady." Adopt position of attention.

3. Second Practice.

- "Draw Revolvers." (From the "ready" position.) The eyes will be directed to an aiming mark with a vertical line beneath the mark to indicate the vertical plane for the lift of the revolver.
- "Muscle Exercise," "Second Practice."
- "Right Hand Ready," "Begin."
- On the command "Begin," the revolver will be quickly raised to the aiming mark and aim taken as for the single action method of firing, the revolver lowered again to the "ready" position, the motion repeated for six times, and then the "rest" position adopted.
- Repeat with the left hand.

4. Third Practice.

- "Draw Revolvers." (From the "ready" position.) The eyes will be directed to the front but no aim or aiming mark used. On the command "Muscle Exercise," "Begin," the revolver will be raised quickly to the line of vision and the hammer cocked by the thumb of the firing hand, making the motion of the revolver assist in the cocking; the trigger will be pressed, the revolver lowered to the "ready" position, the motion repeated for six times, and then the "rest" position adopted.
- "Third Practice." "Right Hand Ready," "Begin."

This exercise will be repeated with either hand until the hammer can be cocked simply and quickly without fumbling or losing the correct grip on the butt. Care must be taken that the finger releases the trigger fully and instantly after pressing the trigger, and that the thumb returns to the correct grip after cocking the hammer.

NOTES FOR INSTRUCTORS.

1. Explain object of each exercise first.
2. Detail and demonstrate and then allow the squad to practise. (Omit detail as soon as the exercise is learnt.)
3. Instructors will control and speed up No. 3 muscle exercise by the use of the whistle. Squads will be divided into pairs (after the preliminary training) to criticise mutually the action of the fingers.

FIRING.

65. Range drill.

1. Inspection of arms.

"For Inspection, Draw
Revolvers." On the command "For Inspection—Draw
Revolvers," bring the Left hand to the holster, seize the *tab* with the forefinger and thumb, and unbutton the *holster*.

Draw the *Revolver* with the Right hand.

Bring it to the vertical position in front of the body, *muzzle* downwards.

Grip the *barrel* with the Left hand, and break open the revolver, keeping the Left hand and *barrel* stationary. Elbows to sides. (See Plate 98.)

After the revolver has been inspected and the Inspecting Officer has passed the next file—close the revolver by raising the *butt* to the *barrel*, keeping the Left hand stationary.

Return the revolver to the *holster*.

Button *holster*.

Stand to Attention.

Stand at ease.



"DRAW REVOLVERS."

"*Prove Revolvers.*" On the command "Prove Revolvers"—carry out the motions as detailed in "Inspection of Arms," and keeping the elbows stationary, turn the *breech* of the revolver towards the Instructor.

"*Draw Revolvers.*" During empty revolver instruction, on the command "Draw Revolvers" the revolver will be withdrawn from the *holster*, proved, closed, and the "Rest Position" adopted.

2. Rest Position.

"*Rest.*" Stand to attention, the revolver in hand, pointing downwards, and towards the target, at an angle of 45° from the body. The elbow against the side and forearm resting on the hip. Trigger finger outside the *trigger guard*. (See Plate 99.)

3. Ready Position.

"*Right (or Left) hand, Ready.*" (From the "Rest Position.") With eyes on the mark.

Take a partial turn to the Left*—advance the Right* foot and fully extend Right arm; the pistol pointing 1 yard in front of the advanced foot and between firer and target, Trigger finger on the trigger. (See Plate 100 (a) and (b).)

NOTE.—* The above applies to the position for a Right-hand practice. For Left-hand practice, substitute Right for Left, Left for Right.



"REST."

PLATE 100 (a).



"READY."

PLATE 100 (b).



"READY."

4. To cock.

"Cock."

On the command "Cock":

Press the trigger finger forward against the inside forward part of the *trigger guard*.

Place the (first phalange of the) revolver-hand thumb on the *comb* of the *hammer*.

Draw the *hammer* back to the full-cock, retaining the positions of the three fingers on the *butt*.

Return hand and thumb to the *butt*, and forefinger to *trigger*.

5. To Uncock.

"Ease
Springs."

On the command—"Ease Springs":

Remove the forefinger from *trigger*.

Place the thumb on the *comb* of *hammer*.

Press the *hammer* firmly back.

Return the forefinger to *trigger*.

Press it, and allow *trigger* and *hammer* to go slowly forward under control.

6. To Change Arms.

"Change
Hands."

On the command "Change Hands" (from the "Rest Position"), transfer the revolver to the other hand.

7. To Load.

".....
Rounds,
Load."

On the command "Load"—(from "Rest Position"):

Turn Half Right, carry off the left foot.

Grasp the *barrel* with the Left hand, knuckles up—the thumb pressed against the *cylinder protector* and *fluting*.

Open the revolver, lowering the *butt* from the *barrel* without allowing the *barrel* to move.

Take two rounds, holding them by their base between the thumb and tips of the first and second fingers. Place these in the "10 and 8 o'clock" chambers, and continue to load in an anti-clockwise direction until all *chambers* are filled. (See Plate 101.)

Close the revolver by bringing the *butt* up to *barrel*.

Return to the "Rest Position."

NOTE.—The revolver *barrel* must be kept, throughout, pointing downwards, at an angle of 45° from the body, and towards the target.

8. To Unload.

"Unload."

On the command "Unload":

Adopt the "Loading Position."

Break the revolver slightly.

Elevate the *muzzle* and break fully, at the same time turning the *butt end* inwards, towards the Right hip. (See Plate 102.)

Close the revolver, adopt the "Rest Position."

NOTE.—The *barrel* must be kept pointing throughout in the direction of the target.

PLATE 101.



"LOAD."

PLATE 102.



"UNLOAD."

9. To return the Revolver to the Holster.

"Return
Revolvers." On the command "Return Revolvers":
From the "Rest Position" return the
revolver to the *holster* with the Right hand.
Button the *holster* with the Left hand.
Stand to attention.
Stand at ease.

66. Advanced exercise (see Annual Course Practice 11).

1. This practice is designed to be a practical test of the knowledge inculcated during previous instruction. Conditions should be made as realistic as possible by the use of surprise targets. The firer should be encouraged to show the offensive spirit, and to act with quick decisions.

2. Whilst in the open, and whilst crossing wire or other obstacles, the *hammer* should be down.

3. However hurried a firer may be, he must never fail to pick a spot on his target as his aiming mark; nor to keep his eye focussed on this spot whilst firing.

4. The firer must count his rounds as he fires. Failing such precaution he is liable to be caught with an empty weapon.

5. He must remember to reload, if possible before his last round has been fired; and must use judgment in choosing the place and time for doing so.

6. Correct manipulation of the revolver must be borne in mind; e.g., by uncocking and recocking the revolver a live round may be passed over.

7. The body must not be unnecessarily exposed. When going round a corner the revolver should be in the firer's outside hand.

8. When fighting with an empty revolver, the grip of the revolver should be retained, and a strong jab delivered with the muzzle into the enemy's throat or eye. To grapple with an enemy armed with the bayonet, seize the opponent's rifle at the muzzle end just behind the *foresight*, and push the point outwards.

WEBLEY REVOLVER MECHANISM.

67. The action of the mechanism.

1. The revolver can be fired:—

i. by single action "cocking";

ii. by double action "continuous."

2. Cocking action.—i. On drawing back the *hammer*, the *mainspring* is compressed as the *hammer* rotates on its *axis pin*. During the motion, the *bent* of the *hammer* bears against the *nose* of the *trigger* and rotates the *trigger*. When the *hammer* is withdrawn to its full extent, the *nose* of the *trigger* clicks into the *bent* of the *hammer*. It is forced in by the *spring* of the *mainspring auxiliary*. (The *mainspring auxiliary* is connected by an *arm* to the *trigger*.)

ii. The *hammer* is then cocked. On pressing the *trigger*, the *nose* of the *trigger* is released from the *bent* of the *hammer*, the compressed *mainspring* drives the *hammer* forward, and the *hammer nose* hits the cap of the cartridge.

iii. On releasing the finger from the *trigger* after firing, the *auxiliary* operated by the *mainspring* comes into play. It pushes the lower part of the *hammer* forward a short distance and so withdraws the top-half of the *hammer*, with the *hammer nose* clear of the cap of the cartridge. At the same time it pushes the *trigger* forward again.

3. What causes the cylinder to rotate?—The *pawl* is pivoted to the *trigger* so that when the *trigger* moves, the *pawl* rises and falls. The *pawl* engages with the *teeth* of the *ratchet* and thus the upward movement of the *pawl* rotates the *cylinder*. The *pawl* drops as soon as the *trigger* is released, and engages behind the next *tooth* of the *ratchet*, ready to rotate the *cylinder* once more as soon as the *trigger* is pressed—in double action, or the *hammer* cocked—in single action. (In single action it has already been seen that the cocking of the *hammer* at the same time rotates the *trigger*.)

A frequent cause of missfires is to hold the *trigger* instead of releasing it fully after each shot. In the former case the *pawl* is prevented from dropping sufficiently far to engage the next *tooth* of the *ratchet*.

4. What holds the cylinder stationary when the hammer is cocked?—When the *hammer* is cocked, the *trigger* has raised the *pawl* to its highest position and holds it engaged in the *ratchet*. Thus the *cylinder* cannot rotate backwards. Nor can it rotate forwards because at this moment the *cylinder stop* has risen and engaged itself in one of the *recesses* in the circumference of the *cylinder*.

The *cylinder* is thus held stationary with the *chamber* in register with the *lead* of the *barrel*.

5. Continuous action.—This is the same as the cocking action except that the *hammer* is rotated and the *mainspring*

compressed, not by the thumb on the *hammer*, but by the pressure on the *trigger*.

The *nose* of the *trigger* bears behind the *hammer catch* and so lifts the *hammer* until the *nose* of the *trigger* rises so high that it slips over the end of the *hammer catch* and allows the *mainspring* to carry the *hammer* forward and strike the cartridge.

N.B.—It will be noticed that the *hammer* does not travel back so far by the double action as in the single action. If the *mainspring* is weak, missfires may occur in double action shooting even though the revolver fires regularly by single action.

68. Care and cleaning.

1. Wear in the *bore* of a firearm is due to :—

- (a) Friction of the bullet.
- (b) Heat from the gases.
- (c) Neglect in cleaning.

2. The first two causes are unavoidable, but a revolver if well looked after will fire many thousands of rounds before wearing out. Neglect in cleaning will, however, soon spoil a revolver.

3. When the weapon is new the *bore* has a bright polish and this polish is a great safeguard against rust and pitting. This polish will, of course, gradually diminish with constant firing.

4. The revolver is easier to clean than the rifle because the heating of the *barrel* is not so great; also, the powders in the cartridge are generally less corrosive than those in rifle cartridges. When the *barrel* gets hot the metal expands, and the burnt gases are forced into the pores of the metal.

5. After firing, these harmful products of the gases sweat out gradually and, having a tendency to absorb moisture readily, they soon cause red rust to appear in the *bore* if allowed to remain.

6. The best way to remove this kind of fouling is to pour boiling water down the barrel by means of a funnel. The heat expands the metal and the water washes out the fouling. The bore must be thoroughly dried after using the water.

7. After firing, the correct sequence of cleaning the *barrel* is :—

- i. Remove the superficial fouling (particles of burnt powder and shavings of lead) with a dry rag and *cleaning rod*.
- ii. Clean out with tightly fitting oily rag (or use boiling water).
- iii. Pass dry clean rag through until no more dirt comes away.
- iv. Oil the *bore* and *cylinders* with clean oily rag.

This process will be repeated every day for at least three days after firing.

Points to be observed in cleaning.

8. Insert the *cleaning rod* from the *breech* end of the *barrel* (except in the solid frame type revolver) after first removing the *cylinder*.

9. Oil the outside of the revolver slightly to prevent rust from forming from the moisture of the hand.

10. Before firing, the *bore* and *cylinders* must be wiped quite dry of oil.

11. Devote particular attention to the removal of dirt from—

- (a) The *trigger stop*
- (b) The *cylinder stop*
- (c) The *pawl*.
- (d) The hole for the *hammer nose*.

12. When firing on a range, clean out the *bore* and *cylinders* and remove any shavings of metal with a dry rag after every 12 shots.

13. Clean the revolver **immediately** after the conclusion of firing.

14. To inspect the *bore* of a solid frame revolver, place the thumb nail at 45° to the *breech* end so as to reflect the light, and look down the *muzzle*.

GENERAL NOTES ON THE CARE OF REVOLVERS.

15. Always keep the revolver in the *holster*, and keep the *tab* buttoned to prevent the revolver falling out. Be careful that the *holster* is dry. When putting a revolver away permanently, it is better to keep it in an oily rag in a proper *case* and not leave it in the leather *holster*. Target revolvers with delicate *sights* are best kept in *cases* and not in *holsters*.

16. Before opening or closing a revolver, the *hammer* should be **down**, otherwise :—

- (a) The cylinder may become damaged.
- (b) A premature explosion may occur.
- (c) Injury to the *trigger mechanism* and *pawl* will occur.

17. Revolvers must be frequently examined for rust or dirt.

They must be thoroughly cleaned as soon as possible after firing.

18. Regulation flannelette and rifle oil will be used.

19. For thorough cleaning the *cylinder* may be removed. Care should be taken that the *cam-lever fixing screw* is not lost.

Cylinders of revolvers must not be exchanged. The number of each is stamped on the *cylinder* and should agree with that on the *body* and *barrel*.

APPENDIX I.

ANNUAL RANGE COURSES FOR RIFLES AND LIGHT AUTOMATICS.

1. The following summary shows the various Tables fired by the different Arms of the Regular and Territorial Army with the Rifle and Light Automatic :—

REGULAR ARMY.

Household Cavalry.

Cavalry of the Line.

Infantry of the Line.

TABLE A.—*Fired by recruits at Depots.*—If no 30 yds. or open range is available at the depot this Table will be carried out after the recruit joins his unit. This Table is fired either on Miniature and 30 Yard Ranges only, or on Miniature, 30 Yards and Open Ranges. It is left to the discretion of G.Os.C.-in-C. which of these two alternatives a recruit carries out.

TABLE R, PARTS I AND II.—*Fired by recruits in the same Weapon Training year as that in which Table A was fired, but after a recruit has joined his unit.*

REGULAR ARMY—*continued.*

TABLE R, PARTS I, II, III, IV, V, VI.—*Fired by Category R soldiers, i.e.,*

- i. By all soldiers in their 2nd Weapon Training year.
- ii. By soldiers in their 3rd or 4th Weapon Training years, except (a) Those who classified as Marksmen or 1st Class Shots in a previous Weapon Training year; and (b) Those serving in Machine Gun Squadron (or Half-squadron) or Platoon.

N.B.—A Cavalry or Infantry Recruit will fire Table R in his 2nd Weapon Training Year, irrespective of his qualification in Table A in his 1st Weapon Training Year.

TABLE L, PARTS I, II, III, IV, V.—*Fired by Category L soldiers, i.e.,*

- i. All soldiers in their 3rd and 4th Weapon Training years, provided that they were classified as Marksmen or 1st Class Shots in a previous Weapon Training year.
- ii. All soldiers in subsequent Weapon Training years whatever their previous rifle classification.

N.B.—Soldiers actually serving in the Machine Gun Platoon or who have fired the Machine Gun Course with the Machine Gun Platoon in the current Weapon Training year will not fire Table L.

TABLE R, PART III, AND MACHINE GUN COURSE, as laid down in Machine Gun Training.—*Fired by soldiers in the Machine Gun Squadron (or Half-squadron) or Platoon who have already fired Table R in its entirety in a previous Weapon Training year. Those who have not done so will fire Table R, except Part VI, instead of Table R,*

REGULAR ARMY—*continued.*

Part III only, during their first year in the Machine Gun Squadron (or Half-squadron) or Platoon.

Partial exemptions to the above:—

(a) *Trained Vickers Machine Gunners*, who have left the Machine Gun Squadron (or Half-squadron) or Platoon, will omit Part VI of Table R or Parts I and II of Table L, whichever their category, and will instead fire a Machine Gun Refresher Course as laid down in Machine Gun Training.

(b) Remainder of H.Q. Wing will fire Table R in their 2nd Weapon Training year and Table L except Part II in their 3rd and subsequent Weapon Training years.

N.B.—(1). Scouts and teams of 6 for each A.A. Light Automatic will fire the whole of Table L.

(2). A Cavalry or Infantry Soldier on being reposted to a Squadron or Company from the Headquarter Wing will fire either Table R, or L, according to his category.

Brigade of Guards.

TABLE A, EXCEPT PART V.—*Fired by recruits at the Depot. (In certain cases at Pirbright or similar Camp.)*

TABLE A, PART V, AND TABLE R.—*Fired by recruits on joining Battalion.*

TABLE R.—*Fired by Soldiers in their 2nd and subsequent Weapon Training years who have not classified as Marksmen or 1st Class Shots in a previous Weapon Training year.*

TABLE L.—*Fired by Soldiers in their 2nd and subsequent Weapon Training year who have classified as Marksmen or 1st Class Shots in a previous Weapon Training year.*

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REGULAR ARMY—*continued.*

TABLE R, PART III.—*Fired by Soldiers in Machine Gun Platoon, in addition to the Course laid down in Machine Gun Training.*

Partial Exemptions.—O.C. Battalions are authorized to make partial exemptions to meet their particular requirements on the lines laid down for partial exemptions for Regular Infantry of the Line.

R.E.

TABLE A (EXCEPT PART V) AND TABLE R, PARTS I AND II.—*Fired by all R.E. recruits while with Training Battalion, Chatham, or at R.E. Mounted Depot, Aldershot.*

TABLE R (EXCEPT PART VI).—*Fired by R.E. of Field Sqs. and Field Coys., except drivers, Fortress and Army Troops Companies, and by R.E. of the Training Battalion and the Depot Battalion in 2nd and subsequent Weapon Training years. Those who have classified as Marksmen or 1st Class Shots in a previous Weapon Training year will not fire Parts I and II.*

TABLE T, PART IV.—*Fired by each man of teams of 6 Hotchkiss or Lewis Gun allowed for A.A. work in Field Sqs. and Coys.*

TABLE R, PARTS I AND II.—(a) *Fired by Drivers of Field Squadrons and Companies in 2nd and subsequent Weapon Training years.*

(b) *Fired by Personnel of R.E. units (other than Field Squadrons and Field Companies, Fortress and Army Troops Companies, and the Training Battalion and the Depot Battalion) in 2nd and subsequent Weapon Training years.*

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[Appendix I.

REGULAR ARMY—*continued.*

R.A.

R.C. of Signals.

R.A.S.C.

R.A.O.C.

TABLE T, PARTS I AND II.—*Fired by Recruits in their 1st Weapon Training year and by Trained Soldiers in subsequent Weapon Training years.*

TABLE T, PART IV.—*Fired by each man of teams of 6 to each Hotchkiss or Lewis Gun allowed for use in an emergency or A.A. work on the establishment of each Battery or Company.*

R.A.M.C.

R.A.V.C.

TABLE T, PART I.—*Fired by Recruits in their 1st Weapon Training year.*

Trained soldiers of these two Corps will not fire an Annual Course.

Army Educational Corps.

VARIOUS.—(a) Those who are attached to and doing duty with units will go through the Course fired by the particular unit to which they are attached under the same conditions as for that unit.

(b) Those doing duty at Garrison Schools may be excused firing by G.Os.C.-in-C., Commands concerned, if in their discretion this is in the interests of the Service.

Militia.

Channel Islands Militia.

Malta Militia.

TABLE T, PARTS I AND II.—*Fired by Recruits in their 1st year service and by Trained Soldiers in their 2nd and subsequent years service.*

TERRITORIAL ARMY.

Yeomanry and Scouts.

Divisional R.E.

Infantry.

TABLE T, PARTS I AND II.—*Fired by Recruits* in 1st year of service, and *by Soldiers* in 2nd and subsequent years of service, except soldiers serving in and up to the establishment of Machine Gun Squadrons (or Half-squadrons) or Platoons and Hotchkiss Gun Detachment or Lewis Gun Sections.

TABLE T, PART I, AND T.A. VICKERS MACHINE GUN COURSE.—*Fired by Personnel of Machine Gun Squadrons (or Half-squadrons) or Platoons.*

TABLE T, PARTS I AND III.—*Fired by Personnel of Hotchkiss Gun Detachments and Lewis Gun Sections*, who qualify on points obtained in Table T, Part III.

TABLE T, PART V.—*Fired by teams of 3 to each Hotchkiss or Lewis Gun* allowed for A.A. defence in each Regiment, Field Squadron or Company, R.E., or Battalion (in addition to Table T, Parts I and II).

R.A.

Coast Defence.

TABLE T, PART I, with 15 rounds for repetition or for C.O.'s. POOL.—*Fired by recruits* in first year of service, and *by soldiers* in 2nd or subsequent years of service.

Light, Medium, and Heavy Batteries.

TABLE T, PART V.—*Fired by each man of teams of 3 to each Hotchkiss or Lewis gun* allowed for ground and A.A. Defence in each battery.

TERRITORIAL ARMY—continued.

R.E., other than R.E. with Divisions.

R. Corps of Signals.

R.A.S.C.

R.A.O.C.

TABLE T, PART I, WITH 15 ROUNDS FOR REPETITION OR FOR C.O.'s. POOL.—*Fired by recruits* in 1st year of service, and *by soldiers* in 2nd or subsequent years of service.

TABLE T, PART V.—*Fired by each man of teams of 3 to each Hotchkiss or Lewis Gun* allowed for ground and A.A. defence, in each Battery or Company.

2. The following summary shows in tabular form the allotment of Practice Ammunition for the Annual Courses:—

REGULAR ARMY.**Household Cavalry.****Cavalry of Line.****Infantry of Line.**

No. of Rounds.

	For Table.	For C.O.'s Pool.
--	------------	------------------

TABLE A.—Recruits and Trained Soldiers

at Depots ...	200	400†
---------------	-----	------

TABLE R, PARTS I AND II ...	135	—
-----------------------------	-----	---

TABLE R.—Category R ...	360	240
-------------------------	-----	-----

TABLE L.—Category L and Scouts and		
------------------------------------	--	--

Teams of A.A. Light Automatics ...	525	75
------------------------------------	-----	----

TABLE R, PART III.—M. Gunners ...	45	200*
-----------------------------------	----	------

TABLE R.—Remainder of H.Q. Wing ...	360	240
-------------------------------------	-----	-----

or	or	or
----	----	----

TABLE L (EXCEPT PART II).—Do. ...	340	260
-----------------------------------	-----	-----

Brigade of Guards.**Recruits:—**

TABLE A (less PART V)—At Depot ...	150	—
------------------------------------	-----	---

TABLE A, PART V (With Battalion) ...	50	25
--------------------------------------	----	----

TABLE R (With Battalion) ...	360	240
------------------------------	-----	-----

Trained soldiers:—

As for Infantry of Line above.

R.E.

TABLE A. (EXCEPT PART V)—Recruits ...	150	—
---------------------------------------	-----	---

TABLE R, PARTS I AND II ...	135	—
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* To be drawn for every Machine Gunner who has completed both Table R, Part III (or Table R except Part VI) and Machine Gun Course.

† See Note 1, page 203.

No. of Rounds.

	For Table.	For C.O.'s Pool.
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REGULAR ARMY—continued.**R.E.—continued.**

TABLE R (EXCEPT PART VI).—Trained Soldiers of Fd. Sqns. and Fd. Coys. (except Drivers) and of the Depot Battalion and the Training Battalion	260	240
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TABLE R. (EXCEPT PART VI).—Trained Soldiers of Fortress and Army Troops Companies	260	40
-----------------------------------------------------------------------------------	-----	----

TABLE T, PART IV.—Teams* of A.A. Light Automatics in Fd. Sqns. and Fd. Coys.	96	—
------------------------------------------------------------------------------	----	---

TABLE R, PARTS I AND II.—Drivers of Fd. Sqns. and Fd. Coys.	135	—
-------------------------------------------------------------	-----	---

TABLE R, PARTS I AND II.—Personnel of other R.E. units	135	—
--------------------------------------------------------	-----	---

R.A.**R.C. of Signals.****R.A.S.C.****R.A.O.C.**

TABLE T, PARTS I AND II.—Recruits and Trained Soldiers	55	—
--------------------------------------------------------	----	---

TABLE T, PART IV.—Teams* of A.A. Light Automatics	96	—
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R.A.M.C.**R.A.V.C.**

TABLE T, PART I.—Recruits only	25	15
--------------------------------	----	----

* Teams of 6 to each Light Automatic.

TERRITORIAL ARMY.

Yeomanry.	No. of Rounds.	
Scouts.		
Divisional R.E.	For Table.	For C.O's Pool.
Infantry.		
TABLE T, PARTS I AND II.—Recruits ...	55	45†
TABLE T, PARTS I AND II.—Soldiers in 2nd and subsequent years' service ...	55	15‡
TABLE T, PART I.—Hotchkiss Gun Detachments, Lewis Gun Sections ...	25	—
TABLE T, PART III.—Ditto... ..	100	—
TABLE T, PARTS I AND II.—A.A. Light Automatic Teams*	55	—
TABLE T, PART V.—A.A. Light Automatic Teams*	50	—

R.A.

Coast Defence.

TABLE T, PART I.—Recruits, and Soldiers in 2nd and subsequent years' service...	25	15§
---------------------------------------------------------------------------------	----	-----

Light, Medium, and Heavy Batteries.

TABLE T, PART V.—Teams* of A.A. Light Automatic	50	—
--------------------------------------------------------	----	---

* Teams of 3 to each Light Automatic. These soldiers qualify by points obtained in Table T, Part II.

† Rounds allowed for repetition; to go into C.O's. Pool if not so used.

‡ C.O's. Pool to be used for repetition of certain practices in Part II. if necessary.

§ C.O's. Pool to be used for repetition if necessary

TERRITORIAL ARMY—continued.

R.E., other than Divisional R.E.	No. of Rounds.	
R.C. of Signals.		
R.A.S.C.	For Table.	For C.O's Pool.
R.A.O.C.		

TABLE T, PART I.—Recruits and Soldiers in 2nd and subsequent years' service... 25 15§

TABLE T, PART V.—Teams* of A.A. Light Automatic 50 —

* Teams of 3 to each Light Automatic. These soldiers qualify by points obtained in Table T, Part I.

§ C.O's. Pool to be used for repetition if necessary.

NOTES ON C.O's. POOL.

1. An O.C. Unit may draw for every recruit who joins his unit after completing Table A at the Depot and also for every recruit who has completed Table A with his unit, 400 rounds S.A.A. This is to provide the ammunition required for the recruit to fire Table R, Parts I and II, the balance going into the C.O's. Pool.

2. The C.O's. Pool is designed to give a Unit Commander considerable latitude in the way he can train his unit and is to be put to the following objects in order of precedence:—

- Hotchkiss and Lewis Gun Section Collective Practices, on which a minimum of 600 rounds per Hotchkiss Gun Detachment and 1,200 rounds per Lewis Gun Section (i.e., 200 rounds per man on the Establishment of Hotchkiss Gun Detachments or Lewis Gun Sections) is to be expended.
- Battle and Close Combat Practices, Demonstrations, Special Training of Fire Unit Leaders, Competitions on Service Lines.
- Special training of backward shots or occasional shots.
- An allotment of not more than 10 rounds per soldier on the strength of the unit on 1st May in each year, to be taken at the discretion of G.Os.C.-in-C. for Command and other Rifle Meetings.
- Practice for Competitions.

3. The number of rounds to be fired in one day is left to the discretion of Commanders.

In designing the Tables for Cavalry and Infantry, however, the length of time which they would take has been carefully considered, and it is estimated that under normal conditions they could be carried out in the following periods:—

Table R.				Table L.			
Part I	...	...	2 days	Part I	...	...	4 days
Part II	...	...	2 „	Part II	...	...	4 „
Repetn.	...	...	2 „	Part III	...	...	2 „
Part III	...	...	2 „	Part IV	...	...	3 „
Part IV	...	...	3 „	Part V	...	...	1 „
Part V	...	...	1 „				—
Part VI	...	...	2 „				14 days
			—				—
			14 days				—

It is also pointed out that there is nothing in the conditions to prevent Table R, Parts I, II and VI, being carried out on the same days as Table L, Parts I and II.

It will be noticed that, in making this estimate, the previous limitation of a day's shoot to 15 rounds has been abandoned and more consideration has been paid to the nature of the various practices.

It should also be noticed that Table R, Parts III, IV and V, are identical with Table L, Parts III, IV and V.

4. In practices in which the kneeling position is laid down, soldiers who wear spurs may adopt either the kneeling or the sitting position.

TABLE A.—RECRUITS' COURSE.

To be fired on either Miniature and 30 Yard Ranges only, or on Miniature, 30 Yards and Open Ranges.

1. *Miniature Range.*

Preliminary practices (40 rounds) will be fired by every recruit before he is tested. These practices will be arranged by the Depot Commander in accordance with his own ideas.

Every recruit will then fire the **Empire Miniature Range Test**, as follows:—

Rounds. Representative Targets and Range. Instruction for Conducting Practices	Scoring.	H.P. Score.	Average Scores (as a guide only).	
			1st Class.	2nd Class.

No. 1.—Grouping.

5 rounds. Small Target.	1-in. group=25	25	20	15
200 yards.	2-in. group=20			
Lying.	3-in. group=15			
	4-in. group=10			

No. 2.—Slow.

5 rounds. Small Target.	Bull = 4	20	17	11
200 yards.	Inner = 3			
Lying.	Magpie = 2			
	Outer = 1			

EMPIRE MINIATURE RANGE TEST—*continued.*

Rounds. Representative Targets and Range. Instructions for Conducting Practice.	Scoring.	H.P. Score.	Average Scores (as a guide only).	
			1st Class.	2nd Class.
No. 3.—Slow.				
5 rounds. Large Target. 500 yards. Lying.	As for Practice No. 2.	20	14	8
No. 4.—Snaphooting.				
5 rounds. Small Snap- shooting Target. 100 yards. *Standing in a trench. 5 seconds each ex- posure.	Each hit on tar- get = 3.	15	9	6
No. 5.—Rapid.				
10 rounds. Small Tar- get. 200 yards. †Lying, 1 minute allowed	As for Practice No. 2.	40	30	20
Total rounds, 30.		120	90	60

Note.—For details of targets, see para. 8 of Amendment to M.R. II, issued with A.O. 474, October, 1921, until issue of Small Arms Training, Vol. III.

* If a trench cannot be built or improvised, this practice may be fired lying behind cover. 5 seconds allowed.

† In cases where magazine rifles are not used, 70 seconds may be allowed instead of 1 minute.

EMPIRE MINIATURE RANGE TEST—*continued.*

The scores shown in the last two columns are "a guide only," and are not minimum qualifying scores for each practice.

Each practice may be fired twice to give the recruit an opportunity of reaching the required standard. The best score of the two attempts to count, *i.e.*, total of 60 rounds allotted for the test.

Classification.

1st Class, 90 points and over. 2nd Class, 60 points and under 90 points. 3rd Class, under 60 points.

Allotment of Ammunition.	No. of Rounds.
Instructional Practices, <i>i.e.</i> , teaching the recruit	40
"Test" (with repetition)	60

Total rounds ... 100

Every recruit will next fire on the 30 yards range.

2. 30 yards Range.

PART I.—PRELIMINARY PRACTICES (30 YARDS RANGE).

No. 1.—Grouping.

5 rounds. Representative Target and range: "Small." 200 yards.

Lying, with arm or rifle rested.

No. 2.—Slow.

5 rounds. Representative Target and range: "Small." 200 yards.

Lying, with arm or rifle rested.

TABLE A, PART I—*continued*.**No. 3.—Grouping.**

5 rounds. Representative Target and range: "Small."
200 yards.
Lying.

No. 4.—Slow.

5 rounds. Representative Target and range: "Small."
200 yards.
Lying.

No. 5.—Rapid.

5 rounds. Representative Target and range: "Small."
200 yards.
Lying. 45 seconds. Rifle to be unloaded and pouch buttoned, the firer standing at "the order" until the command "Rapid Fire" is given.

Total rounds for Part I, 25.

PART II.—INSTRUCTIONAL PRACTICES (REPETITION)

(30 YARDS RANGE).

No. 6.—Grouping.

5 rounds. Representative Target and range: "Small."
200 yards.
Lying. All shots in a 3-inch ring.

No. 7.—Slow.

5 rounds. Representative Target and range: "Small."
200 yards.
Kneeling. Score of 12 points.

TABLE A, PART II—*continued*.**No. 8.—Rapid.**

5 rounds. Representative Target and range: "Small."
200 yards.

Lying. 40 seconds allowed, otherwise as in Practice 5.
Score, 12 points.

9.—Snapshooting.

5 rounds. Representative Target and range: "Small
snapshooting." 100 yards.

Standing. Taking cover in a trench or behind a screen representing a parapet, provided with an elbow rest.

Firer in "Position of Readiness" (i.e., his rifle loaded and four rounds in *magazine*; the whole of his rifle concealed; *sights* adjusted; *safety catch* forward) until the target appears. Firer will return to "Position of Readiness" after firing each shot. Exposure, 6 seconds for each shot.

Score, 3 hits.

On ranges where no trench exists Practice 9 will be fired lying; exposure, 4 seconds for each shot. Firer may be in the aiming position before the target appears.

Total rounds for Part II, 20.

(45 rounds in addition are allotted for repeating Part II if required.)

TABLE A, PART III.—THE TEST (30 YARDS RANGE).

Rounds. Representative Target and Range. Instructions for conducting Practices.	Scoring.	H.P. Score.
No. 10.—Grouping.		
5 rounds. Small Target (4-foot). 200 yards. Lying.	1-in. group=25 2-in. group=20 3-in. group=15 4-in. group=10	25
No. 11.—Slow.		
5 rounds. Small Target (4-foot). 200 yards. Kneeling.	Bull = 4 Inner = 3 Magpie = 2 Outer = 1	20
No. 12.—Rapid.		
10 rounds. Small Target (4-foot). 200 yards. Lying. Rifle unloaded, pouch buttoned, firer standing at "the order" until the command "Rapid Fire" is given. One minute allowed.	As for Practice No. 11.	40

TABLE A, PART III.—THE TEST (30 yards range)—*continued.*

Rounds. Representative Target and Range. Instructions for conducting Practices.	Scoring.	H.P. Score.
No. 13.—Snapshooting.		
5 rounds. Small Snapshooting Target. 100 yards. Standing. Taking cover in a trench† as in Practice 9. Ex- posure, 5 seconds for each shot.	Each hit on tar- get counts 3 points.	15
No. 14.—Slow.		
5 rounds. Large Target (6-foot). 500 yards. Lying.	As for Practice No. 11.	20
Total rounds for Part III, 30.		
†. On ranges where no trench exists Practice 13 will be fired lying. Exposure, 3 seconds for each shot. Firer may be in the aiming position before the target appears. N.B.—See Para. 8 of Amendments to Musketry Regulations, Part II, issued with Army Order 474, 1921, regarding targets to be used in practices of Table "A" until issue of Small Arms Training, Vol. III.		

TABLE A—*continued*.

QUALIFICATION—30 YARDS RANGE.

Recruits will be qualified on scores made in Part III—30 yards range—as follows:—

Good shots—those who obtain 80 points and over.

Fair shots—those who obtain 60 points or over, but less than 80 points.

Unqualified shots—those who obtain under 60 points.

PART IV.—INDIVIDUAL BATTLE PRACTICES.

To include practices in battle firing, observation, gas defence, etc.

30 rounds to be fired on landscape or improvised targets.

3. *Summary of Ammunition (30 yards range only).*

•303 S.A.A., ball ammunition (30 yards range only).

	Rounds.
Part I.—Preliminary... ..	25
„ II.—Instructional	20
For repetition Part II	45
Part III.—The Test	30
„ IV.—Individual Battle Practices	30
„ V.—Light Automatic	50

Total for Table “A” 200

4. *Alternative Open Range Practices.*

The following Parts II and III, Open Range, are alternative to Table “A,” Parts II and III, 30 yards Range, and may be fired by recruits at the discretion of G.Os.C.-in-C., where

TABLE A—*continued*.

open ranges are available within easy distance of depots or units, and in cases in which the extra efficiency gained by shooting on the open range may be considered to compensate for the longer periods of range work thereby entailed.

Recruits of Training Battalion, R.E., will also fire Parts I and IV of Table A on the open range, if no 30-yards range is available, in which case the whole of Part I will be fired from the 100-yards firing point, the targets used being a “Grouping” target and a “Small (4-foot)” target.

TABLE “A,” PARTS II and III. OPEN RANGE.

Alternative to Table “A,” Parts II and III. 30 yards Range.

PART II.—INSTRUCTIONAL PRACTICES (OPEN RANGE).

No. 6.—Grouping.

5 rounds. Grouping Target. 100 yards range.

Lying, with arm or rifle rested.† All shots in a 12-inch ring.

No. 7.—Slow.

5 rounds. Small Target (4-foot). 200 yards range.

Lying, with arm or rifle rested.† Five hits or score of 12 points.

No. 8.—Slow.

5 rounds. Small Target (4-foot). 200 yards range.

Lying.† Five hits or score of 11 points.

† These are standard scores. Repeat once every practice in which less than the standard score is made before firing Part III.

TABLE A, PART II, INSTRUCTIONAL PRACTICES (OPEN RANGE)—*continued.***No. 9.—Slow.**

5 rounds. Small Target (4-foot). 300 yards range.
Lying.† Five hits or score of 10 points.

No. 10.—Slow.

5 rounds. Large Target (6-foot). 200 yards range.
Kneeling.† Four hits or score of 11 points.

No. 11.—Slow.

5 rounds. Large Target (6-foot). 300 yards range.
Standing. Taking cover in a trench or behind a screen representing a parapet, provided with an elbow rest.† Five hits or score of 12 points.

No. 12.—Slow.

5 rounds. Large Target (6-foot). 400 yards range.
Lying, with arm or rifle rested.† Four hits or score of 10 points.

No. 13.—Slow.

5 rounds. Large Target (6-foot). 500 yards range.
Lying, with arm or rifle rested.† Four hits or score of 10 points.

No. 14.—Slow.

5 rounds. Large Target (6-foot). 500 yards range.
Lying.† Four hits or score of 10 points.

Total rounds for Part II, 45.

† These are standard scores. Repeat once every practice in which less than the standard score is made before firing Part III.

TABLE A, PART III.—THE TEST (OPEN RANGE).

No. 15.—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying.

No. 16.—Slow.

5 rounds. Small Target (4-foot). 200 yards range.
Lying.

No. 17.—Rapid.

5 rounds. Small Target (4-foot). 200 yards range.
Lying. 40 seconds. Rifle to be unloaded and pouch buttoned, the firer standing at "the order" until the target appears or the command "Rapid Fire" is given.

No. 18.—Snapshooting (from cover)

5 rounds. Small Target (4-foot). 200 yards range.
Standing. Taking cover in a trench provided with an elbow-rest. Firer in "Position of Readiness" (Plate 33) (*i.e.*, his rifle loaded and four rounds in magazine; the whole of his rifle concealed; sights adjusted; safety catch forward) until the target appears. Firer will return to "Position of Readiness" after firing each shot. Exposure, 6 seconds for each shot.

No. 19.—Slow.

5 rounds. Large Target (6-foot). 300 yards range.
Lying.

No. 20.—Slow.

5 rounds. Large Target (6-foot). 500 yards range.
Lying, with arm or rifle rested.

Total rounds for Part III, 30.

H.P. Score, 125.

TABLE A, PART V—*continued*.

Scoring.—If 4 shots within 2-inch ring, 10 points.

" " 3 " " 6 "
 " " 4 " " 2 "

H.P. Score : 20.

No. 24.—Application.

10 rounds. L.A. Instructional Target. 25 yards range.

To be fired in 2 groups of 5 rounds, the first to get observation.

The instructor places a black patch on the upper portion of the target to mark the spot to be hit by the second group. He then indicates one of the figures as the aiming mark and orders the sights to be set with an error of about 100 to 200 yards either above or below the correct adjustment necessary to hit the black patch.

The firer fires the first group, aiming correctly at the aiming mark indicated, then observes the position of the shots with reference to the black patch and makes the necessary alterations in elevation or point of aim. If correctly done the shots of the 2nd group should hit the black patch.

Before firing the second burst the instructor discusses with the recruit the position of the first group in relation to the point to be hit and the alterations in elevation or point of aim necessary to secure the desired effect with the second burst.

TABLE A, PART V—*continued*.

Scoring.—If the mean point of impact of second group is

Within 2 inches of centre of black patch, 10 points.

" 3 " " " 6 "

If the size of the second group exceeds 4 inches, reduce the above scoring by half.

Object.—An elementary lesson in observing fire and making the necessary corrections by "aiming off" and "adjusting the elevation."

Note.—The following table is given as a guide for the Instructor. If backsight elevation altered from 600 to 700 the rise at 25 yards is approximately $1\frac{1}{2}$ inches.

700 to	800 ditto	2 inches.	1,100 to 1,200 ditto	3 inches.	
800 "	900 "	2 "	1,200 "	1,300 "	$3\frac{1}{2}$ "
900 "	1,000 "	$2\frac{1}{2}$ "	1,300 "	1,400 "	4 "
1,000 "	1,100 "	3 "	1,400 "	1,500 "	$4\frac{1}{2}$ "

No. 25.—Fire Discipline.

15 rounds. L.A. Instructional Target. 25 yards range.

Three *magazines* to be used, each containing 5 rounds.

The firer and No. 2 will be in the lying position about 3 yards behind the firing position, with gun and ammunition prepared as for elementary handling.

The instructor will signal "**Action**." When the Nos. 1 and 2 have moved forward and mounted the gun, he will give a fire order indicating an aiming mark on one of the landscape portions of the target. When he signals "**Fire**," the firer will fire one burst of 5 rounds aiming at the mark indicated.

TABLE A, PART V—*continued.*

The instructor will then order "Stop," and give another order changing the aiming mark; after the second 5 rounds have been fired, he will again order "Stop," and give another fire order for the third 5 rounds.

Object.—To put into practice the lessons learnt in elementary handling and recognition of targets.

Scoring.—Mean point of impact within:—

2 inches of correct point	...	...	10 points.
3 " " " "	...	...	6 "
4† " " " "	...	...	3 "

H.P. Score 30.

6. Depot Staff (Annual Course at Depots).

All trained soldiers on the strength of depots will fire the same Table "A" as the recruits at their depot. The standard to be obtained in Part III to qualify will be 70 points either on the 30 yards range or on the open range. It will not be necessary for them to fire Table "R" or Table "L" at the depot.

The trained soldiers on the strength of depots, where recruits do not fire Range Tables, will fire the above-mentioned Parts of Table "A" on a 30 yards range.

Trained soldiers on the strength of the Training Battalion, R.E., will fire courses as laid down (on page 196 of this Appendix) for R.E.

† If the size of any group exceeds 4 inches reduce the above scoring by half. Half points will not be counted.

TABLE "R."—PART I.

INSTRUCTIONAL PRACTICES.

No.	Practice.	Target.	Distance in Yards.	Rounds.
1*	Grouping (lying, with rest)	Grouping ...	100	5
2*	Slow (lying, with rest)	Small (4 feet) ...	200	5
3*	Rapid (lying) ...	Ditto ...	200	5
4*	Slow (kneeling) ...	Ditto ...	200	5
5*	Snapshooting (from trench)	Ditto ...	200	5
6*	Slow (standing in trench)	Large (6 feet) ...	300	5
7*	Rapid (lying) ...	Ditto ...	300	10
8	Slow (lying, with rest)	Ditto ...	500	5
Total				45

* "Bayonets fixed" for those troops armed with the bayonet.

TABLE "R."—PART II.†
INSTRUCTIONAL PRACTICES (REPETITION).

No.	Practice.	Target.	Distance in Yards.	Rounds.
9*	Grouping (lying) ...	Grouping ...	100	5
10*	Snapshooting (from trench)	Large Snapshooting	200	5
11*	Slow (kneeling) ...	Large (6 feet) ...	300	5
12*	Rapid (standing in trench)	Ditto ...	300	10
13	Slow (lying) ...	Ditto ...	400	5
14	Ditto ...	Ditto ...	500	5
15	Fire with movement	Ditto ...	500 to 100	10
			Total	45

* "Bayonets fixed" for those troops armed with the bayonet.

† Repeat once every practice in Part II in which less than the standard score is made, up to the limit of ammunition (45 rounds) allotted for repetition in this Part, before proceeding to fire Part III.

Classification on Scores made in Part II, Table R.

(Applicable to soldiers of the R.E. who fire Parts I and II only. See page 196.)

- 1st Class shots, those who score 100 points and over.
 2nd " " " 75 points and under 90 points.
 3rd " " " less than 75 points.

TABLE "R."—PART III.†
INSTRUCTIONAL PRACTICES.

No.	Practice.	Target.	Distance in Yards.	Rounds.
1*	Grouping (lying) ...	Grouping ...	100	5
2*	Slow (Gas) (standing in trench)	Small (4 feet) ...	200	5
3*	Rapid (lying) ...	Ditto ...	200	5
4*	Slow (kneeling) ...	Ditto ...	200	5
5*	Snapshooting (from trench)	Large Snapshooting	200	5
6*	Slow (standing in trench)	Small (4 feet) ...	300	5
7	Slow (lying) ...	Large (6 feet) ...	500	5
8	Fire with movement	Ditto ...	500 to 100	10
			Total	45

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part III, Table L.

TABLE "R."—PART IV.†

CLASSIFICATION PRACTICES.

No.	Practice.	Target.	Distance in Yards.	Rounds.
9*	Grouping (lying) ...	Grouping ...	100	5
10*	Snapshotting (from trench)	Large Snapshotting	200	5
11*	Timed (Gas) (lying)	Small (4 feet) ...	200	5
12*	Slow (kneeling) ...	Ditto ...	300	5
13*	Rapid (standing in trench)	Ditto ...	300	15
14	Slow (lying) ...	Large (6 feet) ...	500	5
15	Fire with move- ment	Ditto ...	500 to 100	10
16*	Fire with move- ment	Fig. 2 (Silhouette) ...	200 to 50	5
17	Fire with move- ment and use of bayonet	Small (4 feet) ...	450 to 300	5
Total				60

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part IV, Table L.

TABLE "R."—PART VI.

LEWIS OR HOTCHKISS GUN.

No.	Practice.	Target.	Distance in Yards.	Rounds.
1	Ranging ...	3 falling iron plates at least 1 yard apart	200	12
2	Ranging and im- mediate action	4 falling iron plates at least 1 yard apart	300	16
3	Ranging ...	3 falling iron plates...	400	12
4	Application ...	Large (6 feet) L.A. and M.G.	400	15
5	Fire with move- ment	Ditto ...	400 to 200	45
Total				100

TABLE "R."—PART I.
INSTRUCTIONAL PRACTICES.

No. 1.*—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying, with arm or rifle rested.

No. 2.*—Slow.

5 rounds. Small (4-foot) Target. 200 yards range.
Lying, with arm at rifle rested.

No. 3.*—Rapid.

5 rounds. Small (4-foot) Target. 200 yards range.
Lying. 40 seconds allowed. Rifle to be unloaded and pouch buttoned, the firer standing at "the order" until the target appears or the command "Rapid Fire" is given.

No. 4.*—Slow.

5 rounds. Small (4-foot) Target. 200 yards range.
Kneeling.

No. 5.*—Snapshooting (from Cover).

5 rounds. Small (4-foot) Target. 200 yards range.
Standing, taking cover in a trench or behind a parapet provided with an elbow rest. Firer in "Position of Readiness" (Plate 33) (*i.e.*, his rifle loaded and four rounds in magazine; the whole of his rifle, including the bayonet, concealed; sights adjusted; safety catch forward) until the target appears. Firer will return to "Position of Readiness" after firing each shot. Exposure, 6 seconds for each shot.

No. 6.*—Slow.

5 rounds. Large (6-foot) Target. 300 yards range.
Standing, taking cover as in Practice 5.

* "Bayonets fixed" for those troops armed with the bayonet.

TABLE "R." PART I—continued.

No. 7.*—Rapid.

10 rounds. Large (6-foot) Target. 300 yards range.
Lying. The firer to be standing at "the Order," rifle unloaded and pouch buttoned, until the target appears or the command "Rapid Fire" is given. 1 minute allowed.

No. 8.*—Slow.

5 rounds. Large (6-foot) Target. 500 yards range.
Lying, with arm or rifle rested.

Total rounds for Part I—45.

TABLE R.—PART II.

INSTRUCTIONAL PRACTICES (REPETITION).

No. 9.*—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying. †Standard score, 20.

No. 10.*Snapshooting (from cover).

5 rounds. Large Snapshooting Target. 200 yards range.
Standing, taking cover in a trench, as in Practice 5.
Exposure, 6 seconds for each shot. †Standard score, 9.

No. 11.*—Slow.

5 rounds. Large (6-foot) Target. 300 yards range.
Kneeling. †Standard score, 12.

No. 12.*—Rapid.

10 rounds. Large (6-foot) Target. 300 yards range.
Standing, taking cover in a trench provided with an elbow-rest. Firer in "Position of Readiness" as in Practice 5.

* "Bayonets fixed" for those troops armed with the bayonet.

† Repeat once every practice in Part II in which less than the standard score is made, up to the limit of ammunition (45 rounds) allotted for repetition in this Part, before proceeding to fire Part III.

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TABLE "R," PART II—*continued*.

Part I, until target appears. Loading (after first 5 rounds) will be from the pouch or bandolier, the rifle being kept on the top of the trench. 1 minute allowed. †Standard score, 26.

No. 13.—Slow.

5 rounds. Large (6-foot) Target. 400 yards range.
Lying. †Standard score, 13.

No. 14.—Slow.

5 rounds. Large (6-foot) Target. 500 yards range.
Lying. †Standard score, 11.

No. 15.—Fire with Movement.

10 rounds. Large (6-foot) Target. The firer to be in lying position on 600 yards firing point, with rifle loaded and remaining 9 rounds in *magazine* before first advance. The *safety catch* to be right back before each advance. 500 to 100 yards range.

Advance 600 yards to 100 yards. The firer will fire 2 rounds only at each of the following distances; 500, 400 and 300 yards (lying in the open); 200 and 100 yards (kneeling in the open). 1½ minutes allowed for each advance and the firing of 2 rounds. An interval of 15 seconds will be given between the order to "Stop" and the commencement of the next advance. Bayonets will be fixed at 300 yards before firing by those troops armed with the bayonet. Shots will be signalled on conclusion of the whole practice. †Standard score, 20.

Total rounds in Part II—45,

Rounds allotted for repetition—45,

† Repeat once every practice in Part II in which less than the standard score is made, up to the limit of ammunition (45 rounds) allotted for repetition in this Part, before proceeding to fire Part III.

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[Appendix I.

TABLE "R."—PART III.†
INSTRUCTIONAL PRACTICES.

No. 1.*—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying.

No. 2.*—Slow (Gas).

5 rounds. Small (4-foot) Target. 200 yards range.
Standing, taking cover in a trench provided with elbow rest. Firer with respirator in "Alert" position, rifle unloaded and pouch buttoned. On the word "Gas," firer will adjust his respirator, load and fire. No time limit.

No. 3.*—Rapid.

5 rounds. Small (4-foot) Target. 200 yards range.
Lying. The firer to be standing at the "Order," with rifle unloaded and pouch buttoned, until the target appears or the command "Rapid Fire" is given. 35 seconds allowed.

No. 4.*—Slow.

5 rounds. Small (4-foot) Target. 200 yards range.
Kneeling.

No. 5.*—Snapshooting (from Cover).

5 rounds. Large Snapshooting Target. 200 yards range.
Standing, taking cover in a trench provided with an elbow-rest. Firer in "Position of Readiness" (Plate 33) (*i.e.*, his rifle loaded and 4 rounds in *magazine*; the whole of his rifle, including the bayonet, concealed; *sights* adjusted; *safety catch* forward) until the target appears. Firer will return to "Position of Readiness" after firing each shot. Exposure, 5 seconds for each shot.

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part III, Table L.

TABLE "R," PART III, INSTRUCTIONAL—*continued*.**No. 6.*—Slow.**

5 rounds. Small (4-foot) Target. 300 yards range.
Standing, taking cover in a trench provided with an elbow rest.

No. 7.—Slow.

5 rounds. Large (6-foot) Target. 500 yards range.
Lying.

No. 8.—Fire with Movement.

10 rounds. Large (6-foot) Target. The firer to be in lying position on 600 yard's firing point, with rifle loaded and remaining 9 rounds in *magazine* before first advance. The *safety catch* to be right back before each advance. 500 to 100 yards range.

Advance 600 to 100 yards. The firer will fire 2 rounds only at each of the following distances: 500, 400 and 300 yards (lying in the open); 200 and 100 yards (kneeling in the open). No time limit. Bayonets will be fixed before firing at 300 yards by all troops armed with the bayonet.

Shots will be signalled after each shot.

Total rounds in Part III—45.

For classification of soldiers who fire Parts I and II only, see page 222.

TABLE "R."—PART IV.†
CLASSIFICATION PRACTICES.

No. 9.*—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying.

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part IV, Table L.

TABLE "R," PART IV, CLASSIFICATION—*continued*.**No. 10.*—Snaphooting (from Cover).**

5 rounds. Large Snaphooting Target. 200 yards range.
Standing, taking cover in a trench as for Practice 5, Part III. Exposure, 4 seconds for each shot.

No. 11.*—Timed (Gas).

5 rounds. Small (4-foot) Target. 200 yards range.
Lying with respirator in "Alert" position, rifle unloaded and pouch buttoned. On word "Gas" firer will adjust his respirator, load and fire. 1 minute allowed.

No. 12.*—Slow.

5 rounds. Small (4-foot) Target. 300 yards range.
Kneeling.

No. 13.*—Rapid.

15 rounds. Small (4-foot) Target. 300 yards range.
Standing, taking cover in a trench provided with an elbow rest. Firer in "Position of Readiness" as in Part III, practice 5, until target appears. Loading (after the first 5 rounds) will be from the pouch or bandolier, the rifle being rested on the top of the trench. 1 minute allowed.

For scoring this practice :—

Bull's-eye	= 3.
Inner	= 3.
Magpie	= 2.
Outer	= 1.

No. 14.—Slow.

5 rounds. Large (6-foot) Target. 500 yards range.
Lying.

* "Bayonets fixed" for those troops armed with the bayonet

TABLE "R," PART IV, CLASSIFICATION—*continued*.**No. 15.—Fire with Movement.**

10 rounds. Large (6-foot) Target. 500 to 100 yards range.

Advance 600 yards to 100 yards. The firer to be in lying position on 600 yards firing point, with rifle loaded and remaining 9 rounds in *magazine* before first advance. The *safety catch* to be right back before each advance. The firer will fire 2 rounds only at each of the following distances: 500, 400 and 300 yards (lying in the open), 200 and 100 yards (kneeling in the open). 1 minute allowed for each advance and the firing of 2 rounds. An interval of 15 seconds will be given between the order to "**Stop**" and the commencement of next advance. Bayonets will be fixed before firing at 300 yards by all troops armed with the bayonet.

There will be no signalling of shots till the practice is completed. Time limit may be increased to $1\frac{1}{4}$ minutes on difficult ranges at the discretion of Area or Brigade Commanders.

No. 16.*—Fire with Movement.

5 rounds. Fig. 2 (Silhouette) Target. 200 to 50 yards range.

Slow advance in line from 200 to 50 yards. The firer to be standing at "the order" with his rifle loaded and *safety catch* back before the order to "advance." While advancing, the rifle will be carried at the "high port." The firer will halt and fire one shot from the standing position at each appearance of the target. Exposures: the target to be exposed five times during the advance at approximately

* "Bayonets fixed" for those troops armed with the bayonet.

TABLE "R," PART IV, CLASSIFICATION—*continued*.

the following distances: 175, 150, 125, 100 and 75 yards. Four seconds for each exposure.

Hits will be signalled at the conclusion of the practice.

No. 17.—Fire with Movement and Use of Bayonet.

5 rounds. Small (4-foot) Target. 450 to 300 yards range.

One bayonet sack for each firer will be placed about 15 yards in rear of the 300 yards firing-point. The firers will adopt the lying position, with rifles loaded and *safety-catch* back, 50 yards in rear of the 400 yards firing-point. 1 minute allowed to advance 50 yards and fire 2 rounds only at 400 yards. An interval of 15 seconds will be given before the next advance (during which bayonets will be fixed). 1 minute allowed to advance 100 yards, bayonet the sack and fire 3 rounds at 300 yards. Hits in this practice to count as in Practice 13. No points are allotted for bayonet work, which will be carried out in correct style and with dash.

Shots will be signalled on the completion of the whole practice. Time limit for the advance from 400 to 300 yards may be increased to $1\frac{1}{4}$ minutes on difficult ranges at the discretion of Area or Brigade Commanders.

Total rounds in Part IV—60.

Classification in Part IV as follows:—

Highest possible score 215 points.

Marksman ... Those who obtain 140 points and over.

1st Class Shots ... Those who obtain 120 points and under 140 points.

TABLE "R," PART IV, CLASSIFICATION—*continued*.

2nd Class Shots	... Those who obtain 90 points and under 120 points.
3rd Class Shots	... Those who obtain under 90 points.

TABLE "R."—PART V.
INDIVIDUAL BATTLE PRACTICES.*See Appendix 1A.*

Total rounds—20.

These will be fired immediately after classification, and are an integral part of Table "R."

Extra ammunition above 20 rounds per man for Individual Battle Practices will be taken from the C.O.'s pool.

TABLE "R."—PART VI.
LEWIS OR HOTCHKISS GUN.

No. 1.—Ranging.

12 rounds loaded in the *magazine* or *strip* in 3 groups of 4 rounds each with spaces between each group. Target, 3 falling iron plates at least 1 yard apart. 200 yards range.

To be fired over cover in bursts of 4 rounds each, the firer observing the strike of each burst without assistance, and making any necessary alterations in elevation or deflection.

The gun will be rested on the cover without using the *mounting*.

Object.—To teach the firer to observe the strike of the bullets and to make the necessary adjustments to get accurate application.

TABLE "R," PART VI, LIGHT AUTOMATIC—*continued*.

No. 2.—Ranging and Immediate Action.

16 rounds. Target, 4 falling iron plates at least 1 yard apart. 300 yards range.

The instructor will arrange the practice by setting up 3 stoppages which can be cured by Immediate Action. (For Lewis gun, first or second position only to be actually set up.) The firer to fire in bursts and observe as in Practice 1.

Object.—To teach the firer to observe the strike of the bullets and make the necessary adjustments to get correct application, and also to give him the opportunity of recognising stoppages cured by Immediate Action.

No. 3.—Ranging.

12 rounds. Target, 3 falling iron plates. 400 yards range.

As for Practice 1, except that it will be fired round cover, and the *mounting* will be used.

No. 4.—Application.

15 rounds. "Large" (6-foot.) L.A. and M.G. Target. 400 yards range.

Firing round cover as in Practice 3. To be fired in bursts of 4 or 5 rounds each.

Scoring.—2 points for each hit on the scoring surface of the target.

H.P. Score, 30

TABLE "R," PART VI, LIGHT AUTOMATIC—*continued*.

No. 5.—Fire with Movement.

45 rounds in 3 *magazines* or *strips*, each containing 15. "Large" (6-ft.) L.A. and M.G. Target. 400 to 200 yards range.

Fire 15 rounds at 400 yards. 10 seconds allowed. Interval, 10 seconds.

Advance to 300 yards F.P., load and fire 15 rounds. 90 seconds allowed. Interval,* 10 seconds.

Advance to 200 yards F.P., load and fire 15 rounds. 90 seconds allowed. After firing the 15 rounds at 400 and 300 yards the firer will unload (and place another *magazine* on the Lewis gun); the gun must not be loaded until the next firing point is reached.

Scoring.—1 point for each hit on the scoring surface of the target.

H.P. Score, 45.

SUMMARY OF AMMUNITION—TABLE "R."

Part I	...	...	...	...	...	45
Part II	...	...	...	...	...	45
Repetition in Part II	...	...	...	...	...	45
Part III	...	...	...	...	...	45
Part IV.—Classification	...	...	...	...	...	60
Part V.—Individual Battle Practices	...	...	...	...	...	20
Part VI.—Light Automatic	...	...	...	...	...	100
Total rounds	...	...	...	...	...	360

* N.B.—If any gun is not clear at the end of the time limits laid down for the "interval" (between the order "Cease firing" and the order "Advance"), the conducting officer will extend the time limit of the interval until all firers have cleared their guns and are ready to advance.

TABLE "L."—PART I.

LEWIS AND HOTCHKISS GUN.

No.	Practice.	Target.	Distance in Yards.	Rounds.
1	Stoppage Remedy- ing	Either :— Falling Iron Plates or L.A. Instructional Target	300 or 25	34
2	Distribution ...	L.A. Instructional ...	25	20
3	Ranging ...	2 Falling Iron Plates	300	8
4	Application ...	"Small" (4 feet) L.A. Target	300	15
5	Distribution ...	L.A. and M.G. Screen 10' x 3' ...	300	30
6	Ranging ...	2 Falling Iron Plates	400	8
7	Firing in Respira- tors	"Large" (6 feet) L.A. and M.G. Target	400	15
8	Fleeting Target ...	Ditto ...	500	15
9	Fire with Move- ment	Ditto ...	500 to 200	40
10	A.A. Aiming and Holding	A.A. 1 ...	10	20
11	A.A. Quick open- ing of Fire	A.A. 2 ...	10	10
Total				215

TABLE "L."—PART II

CLASSIFICATION (LIGHT AUTOMATIC).

No.	Practice.	Target.	Distance in Yards.	Rounds.
12	Ranging ...	2 Falling Iron Plates	400	10
13	Application at Slow Rates	"Small" (4 feet) L.A. Target	400	20
14	Distribution ...	L.A. and M.G. Screen 10' x 3'	400	30
15	Fleeting Target ...	"Large" (6 feet) L.A. and M. G. Target	500	15
16	Fire with Move- ment	Ditto ...	500 to 300	45
17	Firing at Extended Infantry	4 Figs. 2 ...	300	20
18	Moving Target ...	3 Figs. 6 ...	300	15
19	A.A. "Action" ...	A.A. 2 Target ...	10	20
20	A.A. Diving ...	A.A. 2a Target ...	10	10
			Total	185

TABLE "L."—PART III.†

INSTRUCTIONAL PRACTICES.

No.	Practice.	Target.	Distance in Yards.	Rounds.
*1	Grouping (lying) ...	Grouping ...	100	5
*2	Slow (Gas) (stand- ing in trench)	"Small" (4 feet) ...	200	5
*3	Rapid (lying) ...	Ditto ...	200	5
*4	Slow (kneeling) ...	Ditto ...	200	5
*5	Snaphooting (from trench)	"Large" Snaphoot- ing	200	5
*6	Slow (standing in trench)	"Small" (4 feet) ...	300	5
7	Slow (lying) ...	"Large" (6 feet) ...	500	5
8	Fire with Move- ment	Ditto ...	500 to 100	10
			Total	45

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part III, Table "R."

TABLE "L."—PART IV.†
CLASSIFICATION PRACTICES.

No.	Practice.	Target.	Distance in Yards.	Rounds.
*9	Grouping (lying) ...	Grouping	100	5
*10	Snaphooting (from trench)	"Large" Snaphoot- ing	200	5
*11	Timed (Gas) (lying)	"Small" (4 feet) ...	200	5
*12	Slow (kneeling) ...	Ditto	300	5
*13	Rapid (standing in trench)	Ditto	300	15
14	Slow (lying) ...	"Large" (6 feet) ...	500	5
15	Fire with Move- ment	Ditto	500 to 100	10
*16	Ditto	Fig. 2 Silhouette ...	200 to 50	5
17	Fire with move- ment and use of bayonet	"Small" (4 feet) ...	450 to 300	5
Total				60

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part IV, Table "R."

TABLE "L."—PART I.
INSTRUCTIONAL PRACTICES, LEWIS OR
HOTCHKISS GUN.

No. 1.—Stoppage Remedying.

34 rounds. Either falling iron plates or L.A. Instructional Target. 300 or 25 yards range.

To be fired during preliminary training in Stoppage Remedying. A stoppage should be set up about every 5 rounds, the firer not knowing what stoppage has been set up.

Object.—To enable the firer to recognize the stoppages as they occur when firing ball ammunition, and to carry out the remedies, at the same time maintaining accuracy of fire.

No. 2.—Distribution.

20 rounds. L.A. Instructional Target. 25 yards range.

Two points 9 to 10 inches apart on one of the landscape portions of the target will be indicated by the instructor as the limits between which fire is to be distributed. For men firing the practice for the first time, these two points should be in the same horizontal line.

The firer will distribute his fire in bursts of 4 or 5 rounds, changing his aiming mark by about 2 inches along the line indicated for each burst.

Object.—An elementary exercise in distributing fire along a linear target which has no clearly defined aiming mark, and affording the firer the opportunity of seeing the correctness or otherwise of his fire.

The result to aim for is an even distribution of the shot holes

TABLE "L," PART I—*continued*.

within an inch of a line drawn at such distance above the aiming line as would be correct for the elevation used.

No. 3.—Ranging—Firing over Cover without using the Mounting.

8 rounds. Target, 2 iron falling plates. 300 yards range.

To be fired in 2 bursts of 4 rounds each, the firer observing his fire without assistance, adjusting sights accordingly.

Object.—To ascertain the sighting elevation required at this distance.

No. 4.—Application—Firing over Cover without using the Mounting.

15 rounds. "Small" (4-ft.) L.A. Target. 300 yards range.

The firer lies down about 5 yards behind the firing point. On the order being given by the conducting officer, he places the *magazine* on the Lewis gun, gun not loaded.

When the conducting officer signals "Action," the firer will move to the F.P., mount his gun, load, and fire.

Time: 25 seconds allowed from the signal "Action."

Object.—To practise coming into action and obtaining fire effect without delay.

No. 5.—Distribution, Lying and Using the Mounting.

30 rounds in 2 *magazines* or *strips*, 15 in each. Target, L.A. and M.G. screen, 10 feet by 3 feet, divided into 6 rectangles each 20 inches by 36 inches, 300 yards range.

The firer should start at one end of the target, and distribute to the centre in 3 overlapping cones, change *magazines*

TABLE "L," PART I—*continued*.

or *strips*, start at the other end, and distribute 3 bursts in reverse direction.

Object.—To give practice in distributing fire by groups of overlapping cones.

No. 6.—Ranging.

8 rounds. Target, 2 iron falling plates. 400 yards range. As for Practice 3.

No. 7.—Firing in Respirators.

15 rounds. "Large" (6-ft.) L.A. and M.G. Target. 400 yards range.

The target will be exposed for 40 seconds. When the target is being raised the conducting officer will give the word "Gas." The firer will put on his respirator and fire the 15 rounds. The gun will be loaded before the word "Gas," but *sights* will be set at zero and not adjusted until the firer has his respirator on.

No. 8.—Fleeting Target.

15 rounds. "Large" (6-ft.) L.A. and M.G. Target. 600 yards range.

The firer to be in position ready to fire, except that the butt of the gun will be on the ground and the *sights* at zero until the target appears. The target will be exposed for 12 seconds. As soon as it appears the firer will adjust his *sights* and fire the 15 rounds.

Object of Practice.—To teach quick opening of fire.

No. 9.—Fire with Movement (advancing and firing from successive fire positions).

40 rounds in three *magazines* or *strips*, two containing 15, one containing 10.

TABLE "L," PART I, PRACTICE 9—*continued*.

"Large" (6-ft.) L.A. and M.G. Target. 500 to 200 yards range.

Orders by Conducting Officer and action of Firer and No. 2:—

READY.—Nos. 1 and 2 in lying position on 500 yards F.P. The *magazine* containing 10 rounds on the Lewis gun, gun not loaded.

ADVANCE.—Move to 400 yards F.P. and get into action ready to fire.

FIRE.—Fire 10 rounds.

CEASE FIRING.—As laid down for elementary handling.

ADVANCE.—Move to 300 yards F.P. and get into action ready to fire.

FIRE.—Fire 15 rounds.

CEASE FIRING.—As laid down for elementary handling.

ADVANCE.—Move forward to 200 yards F.P. and get into action ready to fire.

FIRE.—Fire 15 rounds.

UNLOAD.—Clear gun and report.

No Time Limit.—The pace of the practice is regulated by the intervals between the conducting officer's words of command. The conducting officer will aim at correctness of drill and accuracy of fire rather than quickness.

No advance will be made from one range until all the guns are clear.

Object.—To give practice in advancing by bounds from fire position to fire position.

TABLE "L," PART I—*continued*.

No. 10.—Anti-Aircraft Aiming and Holding.

20 rounds loaded in *magazine* or *strips* in three groups—2 of 7 and 1 of 6. A.A. 1 Target. 10 yards range.

The instructor will indicate three target aeroplanes flying in different directions. The firer will fire at each one in turn, firing six rounds at one and seven at each of the others.

Object of Practice.—To test the aiming and holding when firing from the A.A. *portable mounting* and using the A.A. *sights*.

No. 11.—Anti-Aircraft Quick Opening of Fire.

10 rounds. A.A. 2 Target. 10 yards range.

The target will be exposed for 10 seconds.

The gun will be mounted on the A.A. *mounting* and loaded on the order of the conducting officer. The firer will stand ready to aim and open fire as soon as the target appears.

Object of Practice.—To give practice in quick aiming and opening of fire.

TABLE L, PART II.—CLASSIFICATION (LIGHT AUTOMATIC).

In the practices of this part no assistance will be given to the firer except by the No. 2.

Each firer will be given an opportunity of performing "The Points Before Firing," prior to being called upon to fire any practice.

TABLE "L," PART II, CLASSIFICATION—*continued*.

Failure to fire all the rounds allotted due to any cause other than defective mechanism or breakage will count against the firer. In case of a stoppage caused by a breakage or defect in the mechanism, extra time will be given in proportion to the time lost thereby, but if the cause for such stoppage can be traced to neglect on the part of the firer in attending to "The Points Before Firing," no allowance will be made.

In case of miss-fires, the superintending officer will allow the firer another round for each miss-fire.

If any rounds are fired after the "Stop" signal in the timed practices, the superintending officer will deduct two points for every round so fired.

The superintending officer will check the number of rounds in each *magazine* before each firer commences a practice.

TABLE "L."—PART II.
CLASSIFICATION TEST—LEWIS OR HOTCHKISS
GUN.

No. 12.—Rangin.

10 rounds. Target, 2 iron falling plates. 400 yards range.
To be fired as a preliminary part of practice 13.
Time limit, Nil.

Method of Scoring.—Nil.

No. 13.—Application at Slow Rate (*i.e.*, with pauses of about 10 seconds between each burst).

20 rounds (in one *magazine* or *strip*). "Small" (4-ft.) L.A. Target. 400 yards range.

TABLE "L," PART II, CLASSIFICATION—*continued*.

The conducting officer will give the order "5 bursts SLOW—FIRE" and will time the pace of the practice by blowing his whistle four times at intervals of 12 seconds after having given the order to fire. The firer will be in the aiming position with the gun loaded and will fire one burst when the order "Fire" is given and subsequently will fire one burst after each time the whistle sounds.

Time limit, one minute.

Method of Scoring.—Two points for each hit on the scoring surface of the target. H.P. Score, 40.

No. 14.—Distribution.

30 (in one *magazine* or *strip*). Target, L.A. and M.G. screen 10 feet long by 3 feet high, divided into 6 rectangles, each 20 inch by 36 inch. 400 yards range.

Gun to be loaded and firer in the aiming position when signal to fire is given.

Time limit, 18 seconds.

Method of Scoring.—Each rectangle containing:—

1 shot	...	...	...	...	...	4 points
2 shots	...	...	...	...	...	5 "
3 "	...	...	...	...	...	6 "
4 "	...	...	...	...	...	7 "
5 or more	...	...	...	...	...	8 "

H.P. Score, 48.

Shots on the dividing lines between rectangles count to the rectangle most advantageous to the firer.

TABLE "L," PART II, CLASSIFICATION—*continued*.**No. 15.—Fleeting Target.**

15 rounds (in one *magazine* or *strip*). "Large" (6-foot) L.A. and M.G. Target. 500 yards range.

Orders by Conducting Officer and Action of Firer and No. 2.

Firer in position on the firing point with gun loaded, the butt to be on the ground and *sights* at zero until the target appears. As soon as the target is raised the firer will adjust his *sights* and fire the 15 rounds. The target will be exposed for 12 seconds.

Time limit, 12 seconds.

Method of Scoring.—2 points for each hit on the scoring surface of the target. H.P. Score = 30.

No. 16.—Fire with Movement (advancing and firing from successive fire positions).

45 rounds (3 *magazines* or *strips*, 15 rounds in each). "Large" (6-foot) L.A. and M.G. Target. 500 to 300 yards range.

Orders by Conducting Officer and Action by Firer and No. 2.

ACTION.—Nos. 1 and 2 in position ready to fire on 500 yards F.P.

FIRE.—15 rounds. Time limit, 10 seconds.

CEASE FIRING.—As in Elementary Handling, the "Cease firing" position being behind any existing cover as stipulated by the conducting officer, provided it is not more than 5 yards from the Action Position. Time limit, 15 seconds.

ADVANCE.—Move to 400 yards F.P., load and fire 15 rounds. Time limit, 60 seconds.

TABLE "L," PART II, CLASSIFICATION—*continued*.

CEASE FIRING.—As at 500.

ADVANCE.—Move to 300 yards F.P., load and fire 15 rounds. Time limit, 60 seconds.

UNLOAD.—Clear gun—report.

Total time, 2 minutes, 40 seconds.

Note.—The termination of each time period will be denoted by a whistle blast followed immediately by the next word of command.

If any gun is not clear at the end of the time limit laid down for the "interval" (between the order "Cease firing" and the order to "Advance"), the conducting officer will extend the time limit of the interval until all firers have cleared their guns and are ready to advance.

Method of Scoring.—Each hit on the scoring surface of the target = 1 point. H.P. Score, 45.

No. 17.—Firing at Extended Infantry.

20 rounds (in one *magazine* or *strip*). Target, 4 Figs. 2 with lateral intervals of at least 2 yards between each figure. 300 yards range.

The firer should fire a burst of 5 rounds at each figure.

Time limit, 15 seconds.

Scoring.—Each figure hit by :—

1 shot	6 points
2 shots	7 "
3 "	8 "
4 "	9 "
5 or more	10 "

H.P. Score = 40.

(B 27/9)Q

Appendix I.]

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TABLE "L," PART II, CLASSIFICATION—*continued*.

No. 18.—Moving Target.

15 rounds. 3 Figs. 6. 300 yards range.

The three targets will be raised together with spaces of about 1 foot between the head of one target and the tail of the other. The targets will be raised and move 12 yards along the markers' gallery in 12 seconds. The firer may be in the aiming position before the targets appear.

Time limit, 12 seconds.

Scoring.—Each figure hit by :—

1 shot	...	...	...	...	6 points
2 shots	...	...	...	...	7 "
3 "	...	...	...	...	8 "
4 "	...	...	...	...	9 "
5 or more	...	...	...	...	10 "

H.P. Score, 30.

No. 19.—Anti-Aircraft "Action."

20 rounds (in two *magazines* or *strips*), 10 rounds in each. A.A. 2 Target. 10 yards range.

The gun will be mounted on the A.A. *mounting* and loaded on the order of the conducting officer. The firer will then stand clear of the gun. The target will be raised and exposed for 25 seconds. When the target appears the firer will take hold of the gun, aim at one of the silhouette aeroplanes, and fire 10 rounds, then change *magazines* (or *strips*) and aim at the other silhouette and fire the remaining 10 rounds.

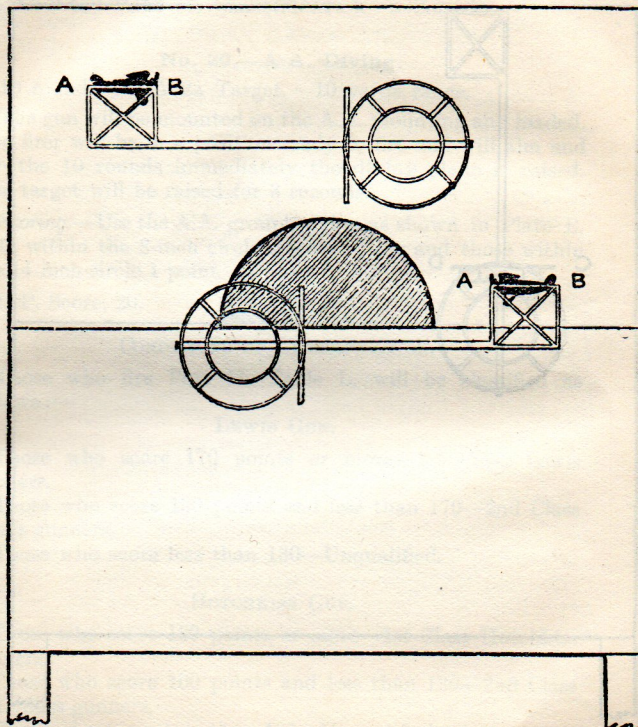
Scoring.—Use the A.A. grouping ring as shown in Plate A. Hits within the 8-inch circle score 2 points and those within the 14-inch circle 1 point.

H.P. Score, 40.

PLATE A.

[To face page 250.

Diagram showing the crossing aeroplane and A.A. grouping ring in use in two positions on any 6-ft. target.

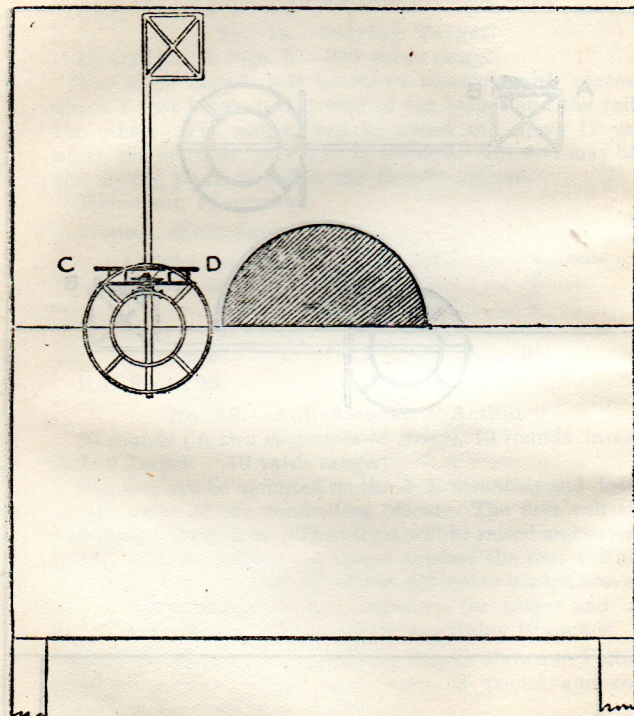


NOTE.—Bar "A.B." or grouping ring coincides with centre line of aeroplane directly above the spots marked on aeroplane

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PLATE B.

Diagram showing the diving aeroplane and A.A. grouping ring in use on any 6-ft. target.



NOTE.—Bar "C.D." of grouping ring coincides with top plane of aeroplane.

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[Appendix I.

TABLE "L," PART II, CLASSIFICATION—*continued*.

No. 20.—A.A. Diving.

10 rounds. A.A. 2a Target. 10 yards range.

The gun will be mounted on the A.A. mounting and loaded. The firer will be in a position ready to fire and will aim and fire the 10 rounds immediately the diving plane is raised. The target will be raised for 3 seconds.

Scoring.—Use the A.A. grouping ring as shown in Plate B. Hits within the 8-inch circle score 2 points and those within the 14-inch circle 1 point.

H.P. Score, 20.

CONDITIONS OF CLASSIFICATION.

Those who fire Part II, Table L, will be classified as follows :—

LEWIS GUN.

Those who score 170 points or more—1st Class Lewis gunners.

Those who score 130 points and less than 170—2nd Class Lewis gunners.

Those who score less than 130—Unqualified.

HOTCHKISS GUN.

Those who score 130 points or more—1st Class Hotchkiss gunners.

Those who score 100 points and less than 130—2nd Class Hotchkiss gunners.

Those who score less than 100—Unqualified.

(B 27/9)q

TABLE "L," PART III.—RIFLE.†
INSTRUCTIONAL PRACTICES.

No. 1.*—Grouping.

5 rounds. Grouping Target. 100 yards range.
Lying.

No. 2.*—Slow (Gas).

5 rounds. Small (4-foot) target. 200 yards range.
Standing, taking cover in a trench provided with elbow rest.
Firer with respirator in "Alert" position, rifle unloaded and pouch buttoned. On the word "GAS," the firer will adjust his respirator, load and fire. No time limit.

No. 3.*—Rapid.

5 rounds. Small (4-foot) target. 200 yards range.
Lying. The firer to be standing at "the Order," with rifle unloaded and pouch buttoned, until the target appears or the command "Rapid Fire" is given. 35 seconds allowed.

No. 4.*—Slow.

5 rounds. Small (4-foot) target. 200 yards range.
Kneeling.

No. 5.*—Snapshooting (from Cover).

5 rounds. Large snapshooting target. 200 yards range.
Standing, taking cover in a trench provided with an elbow-rest. Firer in "Position of Readiness" (*i.e.*, his rifle loaded and 4 rounds in *magazine*, the whole of his rifle, including the bayonet, concealed; *sights* adjusted; *safety catch* forward) until the target appears. Firer will return to "Position of

* "Bayonets fixed" for those troops armed with the bayonet.

† This part is identical with Part III, Table "R."

TABLE "L," PART III.—*continued.*

"Readiness" after firing each shot. Exposure, 5 seconds for each shot.

No. 6.*—Slow.

5 rounds. Small (4-foot) target. 300 yards range.
Standing, taking cover in a trench provided with an elbow rest.

No. 7.—Slow.

5 rounds. Large (6-foot) target. 500 yards range.
Lying.

No. 8.—Fire with Movement.

10 rounds. Large (6-foot) target. 500 to 100 yards range.
Advance 600 to 100 yards. The firer to be in lying position on 600 yards firing point, with rifle loaded and remaining 9 rounds in *magazine* before first advance. The *safety catch* to be right back before each advance. The firer will fire 2 rounds only at each of the following distances: 500, 400 and 300 yards (lying in the open); 200 and 100 yards (kneeling in the open). No time limit. Bayonets will be fixed before firing at 300 yards by all troops armed with the bayonet.

Shots will be signalled after each shot.

Total rounds, Part III:—45.

TABLE "L," PART IV.—RIFLE.†
CLASSIFICATION PRACTICES.

No. 9.*—Grouping.

5 rounds. Grouping target. 100 yards range.
Lying.

* "Bayonets fixed" for those troops armed with the bayonet.

† This Part is identical with Part IV, Table "R."

TABLE "L," PART IV, CLASSIFICATION, RIFLE—*continued.***No. 10.*—Snapshooting (from Cover).**

5 rounds. Large snapshooting target. 200 yards range.
 Standing, taking cover in a trench as for Practice 5,
 Part III. Exposure, 4 seconds for each shot.

No. 11.*—Timed (Gas).

5 rounds. Small (4-foot) target. 200 yards range.
 Lying with respirator in the "Alert" position, rifle unloaded and pouch buttoned. On word "Gas," firer will adjust his respirator, load and fire. 1 minute allowed.

No. 12.*—Slow.

5 rounds. Small (4-foot) target. 300 yards range.
 Kneeling.

No. 13.*—Rapid.

15 rounds. Small (4-foot) target. 300 yards range.
 Standing, taking cover in a trench provided with an elbow-rest. Firer in "Position or Readiness" as in Practice 5, Part III, until the target appears. Loading (after the first 5 rounds) will be from the pouch or bandolier, the rifle being kept on the top of the trench. 1 minute allowed. For scoring this practice:—

Bull's-eye	...	...	...	...	3
Inner	...	...	...	...	3
Magpie	...	...	...	...	2
Outer	...	...	...	...	1

No. 14.—Slow.

5 rounds. Large (6-foot) target. 500 yards range.
 Lying.

* "Bayonets fixed" for those troops armed with the bayonet.

TABLE "L," PART IV, CLASSIFICATION, RIFLE—*continued.***No. 15.—Fire with Movement.**

10 rounds. Large (6-foot) target. The firer to be in lying position on 600 yards firing point, with rifle loaded and remaining 9 rounds in *magazine* before first advance. The *safety catch* to be right back before each advance. 500 to 100 yards range.

Advance 600 yards to 100 yards. The firer will fire 2 rounds only at each of the following distances: 500, 400 and 300 yards (lying in the open), 200 and 100 yards (kneeling in the open). One minute allowed for each advance and the firing of 2 rounds. An interval of 15 seconds will be given between the order to "Stop" and the commencement of next advance. Bayonets will be fixed before firing at 300 yards by all troops armed with the bayonet.

There will be no signalling of shots till the practice is completed. Time limit may be increased to 1½ minutes on difficult ranges at the discretion of Area or Brigade Commanders.

No. 16.*—Fire with Movement.

5 rounds. Fig. 2 (silhouette) target. 200 to 50 yards range.

Slow advance in line from 200 to 50 yards. The firer to be standing at "the order," with his rifle loaded and *safety catch* back before the order to "Advance." While advancing the rifle will be carried at the "high port." The firer will halt and fire one shot from the standing position at each appearance of the target. Exposures: The target to be exposed five times during the advance at approximately the

* "Bayonets fixed" for those troops armed with the bayonet.

TABLE "L," PART IV, CLASSIFICATION, RIFLE.—*continued.*

following distances : 175, 150, 125, 100 and 75 yards. Four seconds for each exposure.

Hits will be signalled at the conclusion of the practice.

No. 17.—Fire with Movement and Use of Bayonet.

5 rounds. Small (4-foot) target. 450 to 300 yards range.

One bayonet sack for each firer will be placed about 15 yards in rear of the 300 yards firing-point. The firers will adopt the lying position, with rifles loaded and safety-catch back, 50 yards in rear of the 400 yards firing-point. One minute allowed to advance 50 yards and fire 2 rounds only at 400 yards. An interval of 15 seconds will be given before the next advance (during which bayonets will be fixed). One minute allowed to advance 100 yards, bayonet the sack, and fire 3 rounds at 300 yards. Hits in this practice to count as in Practice 13. No points are allotted for bayonet work, which will be carried out in correct style and with dash.

Shots will be signalled on the completion of the whole practice. Time limit for the advance from 400 to 300 yards may be increased to 1½ minute on difficult ranges at the discretion of Area or Brigade Commanders.

Total rounds, Part IV : 60.

Classification in Part IV as follows :—

H.P. Score : 215 points.

Marksman ... Those who obtain 140 points and over.

1st Class Shots ... Those who obtain 120 points and under 140 points.

TABLE "L" PART IV, CLASSIFICATION, RIFLE.—*continued.*

2nd Class Shots ... Those who obtain 90 points and under 120 points.

3rd Class Shots ... Those who obtain under 90 points.

TABLE "L," PART V.—RIFLE.
INDIVIDUAL BATTLE PRACTICES.

(See Appendix IA.)

Total rounds : 20.

These will be fired immediately after classification, and are an integral part of Table "L."

Extra ammunition above 20 rounds per man for Individual Battle Practices will be taken from the C.O's. pool.

SUMMARY OF AMMUNITION—TABLE "L."

Part I	215
Part II	185
Part III	45
Part IV	60
Part V	20

Total rounds	525
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TABLE "T."—PART I.

INSTRUCTIONAL.

No. 1.*—Grouping.

5 rounds. Grouping target. 100 yards range.

Lying. (Recruits may use a rest.)

* Practice to be fired with fixed bayonets by trained men of troops armed with the bayonet.

TABLE "T," PART I, INSTRUCTIONAL—*continued*.

No. 2.*—Slow.

5 rounds. Small (4-foot) target. 200 yards range.
Lying. (Recruits may use a rest.)

No. 3.*—Snapshooting.

5 rounds. Small (4-foot) target. 200 yards range.
Lying, rifle rested on sandbag. Each exposure, 6 seconds.

No. 4.*—Rapid.

5 rounds. Large (6-foot) target. 200 yards range.
Lying with rest. The firer to be in observation, with rifle unloaded and pouch buttoned, until the target appears or the command "Rapid Fire" is given. 35 seconds allowed. All shots within inner ring to count 3 points. Shots on target outside inner ring to count as usual. H.P. Score, 15.

No. 5.—Slow.

5 rounds. Large (6-foot) target. 500 yards range.
Lying with rest.
Or when 500 yards range is not available—

No. 5A.*—Slow.

5 rounds. Large (6-foot) target. 300 yards range.
Lying. (Recruits may use rest.)
Total number of rounds in Part I: 25.

* Practice to be fired with *fixed bayonets* by *trained men* of troops armed with the bayonet

TABLE "T," PART II.

THE TEST.—CLASSIFICATION.

No. 6.*—Grouping.

5 rounds. Grouping target. 100 yards range.
Lying.

No. 7.*—Slow.

5 rounds. Small (4-foot) target. 200 yards range.
Lying.

No. 8.*—Snapshooting.

5 rounds. Small (4-foot) target. 200 yards range.
Lying, firing round cover, side of rifle only rested. 5 seconds exposure.

No. 9.*—Rapid.

10 rounds. Small (4-foot) target. 200 yards range.
Standing in a trench provided with an elbow-rest.† Firer in "Position of Readiness" (*i.e.*, his rifle loaded and 4 rounds in the *magazine*; the whole of his rifle, including the bayonet, concealed; *sights* adjusted; *safety catch* forward) until the target appears. Loading (after the first 5 rounds) will be from the pouch or bandolier, the rifle being kept on the top of the trench. 70 seconds allowed. All shots within inner ring to count 3 points. Shots on target outside inner ring to count as usual. H.P. Score: 30.

* Practice to be fired with *fixed bayonets* by *trained men* of troops armed with the bayonet.

† When the range is not provided with a trench, and a parapet with an elbow-rest cannot be provided, Brigade Commanders may authorize this practice to be fired "Lying with rest."

TABLE "T," PART II, THE TEST, CLASSIFICATION—*continued.*

No. 10.—Slow.

5 rounds. Large (6-foot) target. 500 yards range.
Lying.
Or when 500 yards range is not available—

No. 10A.*—Slow.

5 rounds. Small (4-foot) target. 300 yards range.
Lying.

Total number of rounds in Part II: 30.

TABLE T.—PART III.
LEWIS OR HOTCHKISS GUN.

No. 11.—Ranging.

12 rounds loaded in the *magazine* or *strip* in 3 groups of 4 rounds each with spaces between each group. Target, 3 falling iron plates, at least 1 yard apart. 200 yards range.

To be fired over cover in bursts of 4 rounds each, the firer observing the strike of each burst without assistance, and making any necessary alterations in elevation or deflection.

The gun will be rested on the cover without using the *mounting*.

Object.—To teach the firer to observe the strike of the bullets, and to make the necessary adjustments to get accurate application.

* Practice to be fired with *fixed bayonets* by *trained men* of troops armed with the bayonet

TABLE "T," PART III—*continued.*

No. 12.—Ranging and Immediate Action.

16 rounds. Target, 4 falling iron plates, at least 1 yard apart. 300 yards range.

The instructor will arrange the practice by setting up 3 stoppages which can be cured by Immediate Action. (For Lewis gun first and second position only to be actually set up.) The firer to fire in bursts and observe as in Practice 11.

Object.—To teach the firer to observe the strike of the bullets and make the necessary adjustments to get correct application, and also to give him the opportunity of recognizing stoppages cured by Immediate Action.

No. 13.—Ranging.

12 rounds. Target, 3 falling iron plates. 400 yards range.

As for Practice 11, except that it will be fired round cover and the *mounting* will be used.

No. 14.—Application.

15 rounds. Large (6-foot) L.A. and M.G. Target. 400 yards range.

Firing round cover, as in Practice 13. To be fired in bursts of 4 or 5 rounds each.

Scoring.—2 points for each hit on the scoring surface of the target.

H.P. Score: 30.

No. 15.—Fire with Movement.

45 rounds, in 3 *magazines* or *strips*, each containing 15. Large (6-foot) L.A. and M.G. Target. 400 to 200 yards range.

TABLE "T," PART III—*continued*.

Fire 15 rounds at 400 yards—10 seconds allowed. Interval,* 10 seconds.

Advance to 300 yards F.P., load and fire 15 rounds—50 seconds allowed. Interval,* 10 seconds.

Advance to 200 yards F.P., load and fire 15 rounds—90 seconds allowed.

After firing the 15 rounds at 400 and 300 yards, the firer will unload (and place another *magazine* on the Lewis gun); the gun must not be loaded until the next firing point is reached.

Scoring.—1 point for each hit on the scoring surface of the target.

H.P. Score: 45.

Total rounds in Part III: 100.

TABLE T—PART IV.

**COURSE FOR PERSONNEL OF REGULAR ARMY
UNITS ARMED WITH LEWIS AND HOTCHKISS
GUNS FOR EMERGENCY AND ANTI-AIRCRAFT
DEFENCE.**

**No. 1.—Ranging. Firing over cover without using
the Mounting.**

8 rounds. Target, 2 iron falling plates. 300 yards range.

To be fired in 2 bursts of 4 rounds each, the firer observing his fire without assistance, adjusting sights accordingly.

* If any gun is not clear at the end of the time limit laid down for the "interval" (between the order "Cease firing" and the order to "Advance"), the conducting officer will extend the time limit of the interval until all firers have cleared their guns and are ready to advance.

TABLE "T," PART IV—*continued*.

Object.—To ascertain the sighting elevation required at this distance.

No score.

**No. 2.—Application. Firing over Cover without
using the Mounting.**

15 rounds. Small (4-foot) L.A. Target. 300 yards range.

The firer lies down about 5 yards behind the firing point. On the order being given by the conducting officer, he places the *magazine* on the Lewis gun; gun not loaded.

When the conducting officer signals "Action," the firer will move to the F.P., mount the gun, load and fire.

Object.—To practise coming into action and obtaining fire effect without delay.

Scoring.—2 points for each hit on the scoring surface of the target.

No. 3.—Ranging.

8 rounds. Target, 2 iron falling plates. 400 yards range.

As for Practice 1.

No score.

No. 4.—Application.

15 rounds. Large (6-foot) L.A. and M.G. Target. 400 yards range.

As for Practice 2, except that it will be fired round cover, and the *mounting* will be used.

To be fired in bursts of 4 or 5 rounds each.

TABLE "T," PART IV—*continued*.

Scoring.—2 points for each hit on the scoring surface of the target.

H.P. Score : 30.

No. 5.—Anti-Aircraft Aiming and Holding.

20 rounds loaded in the *magazine* or *strip* in 3 groups, 2 of 7 and 1 of 6. A.A. 1 Target. 10 yards range.

The instructor will indicate three target aeroplanes flying in different directions. The firer will fire at each one in turn, firing 6 rounds at one and 7 at each of the others.

Object.—To test the aiming and holding when firing from the A.A. *portable mounting* and using the A.A. *sights*.

No. 6.—Anti-Aircraft "Action."

20 rounds in two *magazines* or *strips*, 10 rounds in each. A.A. 2, Target. 10 yards range.

The gun will be mounted on the A.A. mounting and loaded on the order of the conducting officer. The firer will then stand clear of the gun. The target will be raised and exposed for 25 seconds. When the target appears the firer will take hold of the gun, aim at one of the silhouette aeroplanes, and fire 10 rounds, then change *magazines* (or *strips*) and aim at the other silhouette and fire the remaining 10 rounds.

Scoring.—Use the A.A. grouping ring as shown in Plate A. Hits within the 8-inch circle score 2 points and those within the 14-inch circle 1 point. H.P. Score : 40.

No. 7.—A.A. Diving.

10 rounds. A.A. 2a Target. 10 yards range.

The gun will be mounted on the A.A. *mounting* and loaded. The firer will be in a position ready to fire and will aim and

TABLE "T," PART IV—*continued*.

fire the 10 rounds immediately the diving plane is raised. The target will be raised for 3 seconds.

Scoring.—Use the A.A. grouping ring as shown in Plate B. Hits within the 8-inch circle score 2 points and those within the 14-inch circle 1 point. H.P. Score : 20.

Total rounds in Part IV : 96.

TABLE T.—PART V.

COURSE FOR PERSONNEL OF TERRITORIAL ARMY UNITS ARMED WITH LEWIS OR HOTCHKISS GUNS FOR EMERGENCY AND ANTI-AIRCRAFT DEFENCE—50 ROUNDS.

No. 1.—Introductory.

10 rounds. L.A. Instructional Target. 25 yards range.

To be fired in two bursts of 5 rounds each, with different figures as aiming marks.

Object.—To introduce the recruit to the feel of automatic firing.

No. 2.—Grouping.

10 rounds. L.A. Instructional Target. 25 yards range.

To be fired in two bursts of 5 rounds each, with different figures as aiming marks.

Object.—To test the firers' ability to aim and hold correctly whilst firing.

Scoring.—If 4 shots within 2-inch ring 10 points, 3-inch ring 6 points and 4-inch ring 2 points. H.P. Score : 20.

TABLE "T," PART V—*continued*.

No. 3.—Anti-Aircraft (Aiming and Holding).

20 rounds loaded in the *magazine* or strip in three groups, 2 of 7 and 1 of 6. A.A. 1 Target. 10 yards range.

The instructor will indicate three target aeroplanes flying in different directions. The firer will fire at each one in turn, firing 6 rounds at one and 7 at each of the others.

Object.—To test the aiming and holding when firing from the A.A. *portable mounting* and using the A.A. *sights*.

No. 4.—Anti-Aircraft Quick Opening of Fire.

10 rounds. A.A. 2 Target. 10 yards range.

The target will be exposed for 10 seconds.

The gun will be mounted on the A.A. *mounting* and loaded on the order of the conducting officer. The firer will stand ready to aim and open fire as soon as the target appears.

Object.—To give practice in quick aiming and opening of fire.

Scoring.—Use the A.A. grouping ring as shown in Plate A. Hits within the 8-inch circle score 2 points and those within the 14-inch circle 1 point. H.P. Score: 20.

Total rounds in Part V: 50.

NOTES ON TABLE "T."

1. Table T is designed to meet the requirements of:—

- (a) Those Arms of the Regular Army which carry a rifle for use in an emergency.
- (b) Regular Arms, other than Cavalry or Infantry, who have light automatics for emergency and A.A. use.
- (c) T.A. Yeomanry, Scouts, Divisional R.E. units, and Infantry, who fight with the rifle and light automatic.
- (d) T.A. R.A.—Coast Defence—for rifle.
Light, Medium, and Heavy Batteries—for Light Automatic.

T.A. R.E., other than Divisional R.E.

T.A. R. Corps of Signals.

T.A. R.A.S.C.

T.A. R.A.O.C.

2. For 1 (a) the following ammunition is allowed:—

	Recruits.	Trained Soldiers.
Part I	25	25
Part II	30	30

No rounds are allotted for repetition. Personnel will classify on scores obtained in Part II as under:

Classification.

	Recruit.	Trained Soldier.
1st class shot ...	80 points and over ...	80 points and over.
2nd class shot ...	40 points and less than 80 points.	50 points and less than 80 points.
3rd class shot ...	less than 40 points ...	less than 50 points.

3. For 1 (b) 96 rounds are allotted for each man of the team of 6 for each light automatic on the establishment of the unit, for carrying out Table "T," Part IV.

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NOTES ON TABLE "T"—continued.

4. For 1 (c) the following ammunition is allowed :—

(a) For recruits of Yeomanry, Scouts, Divisional R.E., and Infantry:—

Part I	25 rounds.
Part II	30 „
C.O.'s. Pool	45 „
	<hr/>
	100 „

4. (b) For trained soldiers of the above Arms who are not on the establishment of light automatic troops or section, or of the Machine Gun troop or platoon :—

Part I	25 rounds.
Part II	30 „
C.O.'s. Pool	15 „
	<hr/>
	70 „

The personnel referred to in 4 (a) and (b) will classify and qualify on the scores obtained in Part II as follows :—

	Classification.	
	Recruit.	Trained Soldier.
1st class shot ...	80 points or over.	80 points or over.
2nd class shot ...	40 points and less than 80 points	[50 points and less than 80 points,
3rd class shot ...	less than 40 points	less than 50 points,

Qualification.

- 1st and 2nd class shots qualify for bounty.
- 3rd class shots do NOT qualify for bounty.

(i) The C.O.'s Pool is for repetition of Parts I and II in the case of recruits, and Part II in the case of trained soldiers, battle or close combat practices. Voluntary practices and competition at the discretion of the C.O.

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[Appendix I.

NOTES ON TABLE "T"—continued.

(ii) Provided there is sufficient ammunition available after repetition of practices of Part I, a recruit may repeat Practice 9 and one other, or three practices other than Practice 9, in order to reach the qualification standard, but not in order to become a 1st class shot when already classified as 2nd class shot without repetition.

(iii) A trained soldier will not repeat Part I, but may be allotted 15 rounds from C.O.'s Pool to repeat Practice 9 and one other, or three practices other than Practice 9, in order to reach the qualification standard, but not in order to become a 1st class shot when already classified as 2nd class without repetition.

(iv) In case of repetition the second score only will count.

4. (c) For trained soldiers of the above Arms, on the establishment of light automatic troops or sections :—

Part I	25 rounds.
Part III	100 „
	<hr/>
	125 „

The soldiers referred to in 4 (c) to qualify must obtain an aggregate of 30 points in Practices 14 and 15 of Part III.

4. (d) For trained soldiers of the above Arms, on the establishment of machine gun troops or platoons :—

Table "T," Part I	25 rounds.
Machine gun course, T.A.	530 „

These soldiers to qualify must obtain an aggregate of 40 points in Table "T," Part I, or of 70 points in Classification Practices of Part II, Machine Gun Course, T.A.

Appendix I.]

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NOTES ON TABLE "T"—*continued.*

- (e) For trained soldiers of the above Arms who are members of teams of 3 for each A.A. light automatic:—

Part I	25 rounds.
Part II	30 "
C.O.'s pool	15 "
Part V	50 "

	120 "

These soldiers classify and qualify as in 4 (b) above, and the rules for repetition, &c., therein apply.

5. For I (d) the following ammunition is allotted:—

- (a) Recruits and trained soldiers:—

Table "T," Part I	25 rounds.
C.O.'s pool	15 "

	40 "

The above soldiers will qualify by obtaining a total of 40 points. The C.O.'s pool is to be used by any soldier who has failed to qualify, to repeat, not more than once, either selected practices or the whole of Part I; in the latter case the C.O.'s pool of ammunition of those soldiers who have qualified may be used to provide the additional 10 rounds required. In case of repetition the second score only will count.

- (b) In addition to the above, for those soldiers who are members of teams of 3 for each A.A. light automatic:—

Table "T," Part V	50 rounds.
--------------------------	------------

6. Conduct of Practices.

- (a) Firing will take place under the personal superintendence of a fully qualified officer, who will ensure that all the conditions are strictly observed and that the timing is accurate. Sufficient instructors must be provided to supervise and instruct each firer.

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[Appendix I.]

NOTES ON TABLE "T"—*continued.*

- (b) The practices of Part II are not to be substituted for those of Part I or *vice versa*. A record must be kept of the results of practices fired by each Officer, warrant officer, non-commissioned officer and man.

- (c) The number of rounds to be fired in one day is left to the discretion of C.Os.

7. Permanent Staff.

The Permanent Staff of T.A. units will carry out the same weapon training courses as the T.A. unit with which they are serving; their scores for classification will in each case be 10 points higher than that required from trained T.A. soldiers.

APPENDIX IA.

(Issued as a guide only.)

SUITABLE INDIVIDUAL AND SECTION BATTLE PRACTICES.

RIFLE.

GENERAL NOTES.

1. In practices No. 2 and 3 below, five extra rounds will be issued to each firer. This provision has the object of ensuring that men re-charge and to accustom them to look after their ammunition in battle.

2. Bayonets will be fixed at 300 yards and under in all practices.

3. In all practices, except No. 7, an instructor will be detailed behind every two firers, to note good and bad points. The instructor will on no account speak to or interfere in any way with the firers until the conclusion of the practice, except for purposes of safety.

4. There will be no talking near the firers, but great training value can be obtained by onlookers discussing the practice, in a low tone of voice, at a reasonable distance behind the firers.

5. Interest will be stimulated if these practices are carried out as competitions.

No. 1.—Individual practice.

Name.—“Sniping.”

No. of rounds—5 per man.

Targets.—Figure No. 3, one to each firer.

Range.—200 yards.

Lessons—

- (a) Initiative.
- (b) Concentration of mind.
- (c) Alertness.
- (d) Patience.

Method of conducting—

- (a) Firing round cover, or through a properly constructed loophole.
- (b) Total time for the practice, 8 minutes.
- (c) Firer remains on the alert, in the aiming position, for 8 minutes and fires whenever his own target appears.

The exact front to be watched by each firer should be indicated before the practice is begun.

- (d) Highest possible score = 15 points. Standard score = 9 points.

Points for criticism—

- i. Position.
- ii. Watch kept on the front under observation.
- iii. Accuracy of fire.
- iv. Points of elementary training.

Marker's notes—

- (a) Careful control of targets necessary, use a stop watch if available.
- (b) Each target to be exposed 5 times only during the 8 minutes.
- (c) Each exposure to be for 3 seconds.
- (d) The exposures to be at irregular intervals of time.
- (e) Each target will be exposed in a different place each time within a lateral space of 3 or 4 yards according to the number of firers and the space available.
- (f) Two exposures to be in rapid succession, *i.e.*, up for 3 seconds, down for 3 seconds, up for 3 seconds.
- (g) The fifth exposure of each target to be in the eighth minute; to ensure the firer's concentration during the whole practice.
- (h) Hits will not be signalled until the conclusion of the practice.

No. 2.—Individual practice.*Name.*—"Firing in pairs."*No. of rounds.*—5 per man.*Targets.*—Collapsible: Iron falling plates, tiles or bricks; 5 for each firer.*Range.*—Between 300 and 200 yards. Fire position to be off the normal firing point, if possible.*Lessons—*

- (a) Mutual assistance.
- (b) Observation of fire and the methods adopted by observer for indicating the strike of the bullets.

Method of conducting—

- (a) No time limit:
- (b) Men of section work in pairs, close together.
- (c) One firer fires his 5 rounds in succession, comrade observes for him and *vice versa*.
- (d) Scoring, 3 points per hit, highest possible score, 30 points per pair.

Points for criticism—

- i. Points of elementary training.
- ii. Determining point of aim.
- iii. Observation of fire; information to be exact, not vague.
- iv. Mutual assistance.

Marker's notes.—Targets placed in any convenient position where the firers can observe the strike of the bullet. Targets to be at least one yard apart.

No. 3.—Individual practice.*Name.*—"Assault practice."*No. of rounds.*—5 per man.*Targets.*—Figure No. 2 or 3, one to each firer. Dummy sacks, three to each firer.*Range.*—200 yards to 50 yards.*Lessons—*

- (a) Use of the rifle—bullet and bayonet.
- (b) Firing standing and kneeling.
- (c) Rapid opening of fire.
- (d) Assault training.

Method of conducting—

- (a) Individual exercise, but carried out by sections.
- (b) Advance is assumed to be over broken ground, uphill, or through crops, which necessitates firing standing or kneeling.
- (c) Targets, one per firer, exposed at irregular intervals of time, 5 seconds each exposure.
- (d) Officer conducting practice will regulate the exposure of the targets by signal or other means.
- (e) After completing the 5 exposures, each firer will charge and bayonet 3 successive sacks, placed irregularly, with about 5 yards distance between sacks.
- (f) Scoring: 3 points per hit. Highest possible score, 15.

Standard score, 9

Points for criticism—

- i. Quickness in opening fire.
- ii. Accuracy of fire.
- iii. Correct use of the bayonet.

Marker's notes.—Targets to be exposed immediately each time a short ring or other signal is given from the firing point.

N.B.—Regulate the correct height of the targets before the practice begins.

No. 4.—Individual practice.

Name.—"Scout, sniper, observer, and runner."

No. of rounds.—10 to 15 for each sniper (none required for remainder).

Targets.—Any suitable, according to range. Figures 5, 3 and 2 are suitable.

Range of sniper.—150 to 350 yards.

Lessons.—To practice N.C.Os. and men in duties of scout, sniper, observer, and runner, *i.e.*, (a) Co-operation, (b) Use of ground, (c) Fieldcraft.

Method of conducting—

- (a) Practice may be carried out on the open range or battle practice range.
- (b) Telescopic or ordinary rifles may be used by the sniper.
- (c) Four men are detailed into 2 pairs:—

one pair (x) to act as sniper with observer,
other pair (y) to act as scout and runner.

X are placed by the conducting officer in a suitable sniping post, (say) 300 yards from the butts.

Y are instructed to work forward from (say) 500 yards from the butts to within some definite range of the butt in order to discover certain information (*e.g.*, to read through glasses a notice put up on the butts; or to stalk forward and collect some object placed near the butts).

The audience and the conducting officer are placed in the butts or on a flank—if in the butts, mirrors should be provided—and watch the scout and runner, criticising their actions. Whenever scout or/and runner expose themselves, a marker in the butts exposes a figure target for a corresponding period of time and, if possible, a corresponding

amount of target. When the scout has obtained the information, the runner should return with it to some pre-arranged point.

It is important to make the practice as simple as possible and the ground should be carefully selected beforehand.

No. 5.—Section practice.

Name.—"Gas defence."

No. of rounds.—5 per man.

Target.—One screen, 6 feet long, 2 feet high, to be coloured brown, green or some natural colour, without aiming marks, or any other suitable targets.

Range.—200 yards.

Lessons—

- (a) To accustom men to adjust respirators quickly and to fire with them on.
- (b) Accuracy of fire.

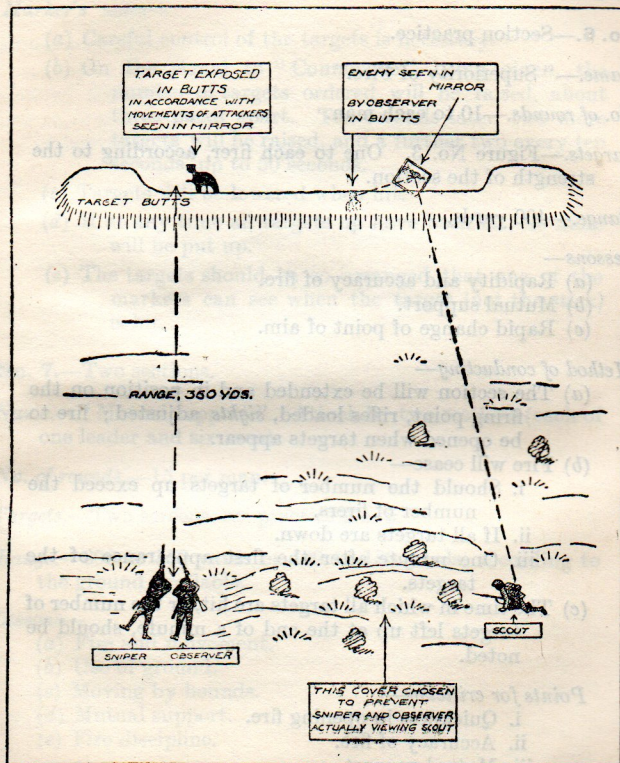
Method of conducting—

- (a) Fired from a trench, rifles loaded and sights adjusted before commencement of practice.
- (b) Time limit of one minute from the command "Fire." Respirators to be adjusted after the command "Fire."

Points for criticism—

- i. Adjustment of respirators.
- ii. Accuracy of fire.
- iii. Points of elementary training.

Marker's notes.—Targets to be placed in a position where observation of the *strike* is possible.



PRACTICE 4.—SCOUT, SNIPER, AND OBSERVER.

The Runner is not shown in this Plate.

No. 6.—Section practice.

Name.—"Superiority of Fire."

No. of rounds.—10 to each man.

Targets.—Figure No. 3. One to each firer, according to the strength of the section.

Range.—400 yards.

Lessons—

- (a) Rapidity and accuracy of fire.
- (b) Mutual support.
- (c) Rapid change of point of aim.

Method of conducting—

- (a) The section will be extended and in position on the firing point, rifles loaded, *sights* adjusted; fire to be opened when targets appear.
- (b) Fire will cease—
 - i. Should the number of targets up exceed the number of firers.
 - ii. If all targets are down.
 - iii. One minute after the first appearance of the targets.
- (c) The time in which all targets are hit, or the number of targets left up at the end of a minute, should be noted.

Points for criticism—

- i. Quickness in opening fire.
- ii. Accuracy of fire.
- iii. Mutual support.

Marker's notes—

- (a) Careful control of the targets is necessary.
- (b) On the signal to "Commence" being given, the number of targets ordered will be raised, about three paces apart. Ten seconds later, two more targets will be raised, and a further two every ten seconds, up to 50 seconds.
- (c) Targets will be lowered when hit.
- (d) If at any time all targets up have been hit, no more will be put up.
- (e) The targets should be so arranged that one of the markers can see when the target (not the stick) is hit.

No. 7.—Two sections.

Name.—"Mutual support." Attack by two sections (each of one leader and six men).

No. of rounds.—15 per man.

Targets.—Two screens, *see* practice No. 5.

Range.—600 to 150 yards or 400 to 150 yards, according to the ground available.

Lessons—

- (a) Fire and movement.
- (b) Use of ground.
- (c) Moving by bounds.
- (d) Mutual support.
- (e) Fire discipline.

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Method of conducting—

- (a) To be fired on a battle-practice range if possible, otherwise on a classification range.
- (b) Sections in suitable formations, intervals between sections about 100 yards, but according to ground.
- (c) Fire positions studied and roughly indicated before the advance begins.
- (d) Sections advance by alternate bounds from fire position to fire position.
- (e) Length of bound will be dependent on ground.
- (f) The fire of one section should be the signal for the other section to advance.
- (g) For economy of ammunition, two rounds only will be ordered by section commanders at each opening of fire.

Points for criticism—

- i. Fire positions.
- ii. Use of ground.
- iii. Mutual support.
- iv. Fire orders.
- v. Fire discipline.

Marker's notes.—Two screens as far apart as possible, placed in a general line on a convenient position.
The number of hits to be recorded.

No. 8.—Two sections.

Name.—"Pin and manœuvre." Attack by two sections.

No. of rounds.—10, 15 or 20 for each man actually firing.

Targets.—Screens, plates or figure silhouettes, representing enemy defence post.

Range.—Any convenient between (say) 650 to 150 yards, according to the ground.

Lessons—

- (a) "The two essential parts of the infantry attack pin the enemy down and thus make or discover weak points or gaps in his defence through which it can also penetrate." Infantry Training, Vol. II. (1921).
- (b) Varying section formations according to ground.
- (c) Choice of fire positions and covered approaches.
- (d) Fire discipline.
- (e) Avoid masking fire of other sections.
- (f) Interchangeable rôles of forward and support sections.

Method of conducting—

- (a) To be fired on battle-practice range if possible ; otherwise on a classification range.
- (b) Sections advance, as forward and support sections, at a distance of about 100 yards, but according to ground.
- (c) Advance continued for certain distance without firing ; then forward section closes with enemy by rushes covered by the fire of a third (imaginary) section. Support section meanwhile moves out to a flank in order to outflank and enfilade the defence posts.
- (d) Unless the range permits of frontal and flanking fire simultaneously, the support section will have to withhold fire after manœuvring into position.
- (e) Alternatively the advance may begin from a point at right angles to, or on the flank of, the butts. In this case the forward section will only be issued with blank, whilst the support section will open

fire as soon as its manœuvre has brought it within a safe angle for the delivery of fire opposite to the butts.

Points for criticism—

- i. Section formations suitable to ground being covered.
- ii. Fire positions.
- iii. Fire control.
- iv. Fire discipline.
- v. Use of cover, of ground and fire by support section.
- vi. Manœuvre well round enemy's flank, not merely an oblique attack.
- vii. Surprise effect either of fire or movement.

No. 9.—Two sections (specially suitable for ranges where fire from two directions is impossible).

Name.—"Blinding enemy by smoke and manœuvre."

No. of rounds.—10, 15 or 20 for each man of support section
Three smoke grenades to forward section.

Targets.—(As in No. 8.)

Range.—(As in No. 8.)

Lessons.—(As in No. 8.)

(g) Use of smoke.

Method of conducting:—

- (a) To be fired on battle-practice range if possible; otherwise on a classification range.
- (b) Sections advance, as forward and support sections, across the range from a point on the flank.
- (c) Advance continued for certain distance without firing; then forward section closes with enemy post covered by the fire of a third (imaginary) section.

Support section meanwhile moves out to a flank in order to outflank and enfilade enemy.

- (d) Forward section blinds enemy post by smoke when within range. Support section, having noted aiming marks, enfilade enemy with fire, followed by assault.

Points for criticism—

- i. Section formations suitable to ground being crossed.
- ii. Manœuvre not to get outside cover afforded by smoke cloud.
- iii. Correct placing of the smoke grenades—i.e., judging direction and force of wind.
- iv. Section leading—fire control of fire and movement—especially during close combat.

N.B.—Precautions must be taken to prevent the smoke grenades setting alight to the grass, heather, etc., on the range.

SPECIMEN LIGHT AUTOMATIC SECTION PRACTICES.

General.

Chain of ammunition supply.—Owing to the limited amount of practice ammunition available in proportion to the rate of fire of the gun, practice in the chain of ammunition supply should be introduced into the practices by distributing the ammunition available for the practices over several magazines, loading only about 10 or 15 in a magazine, and distributing the magazines amongst the men of the section.

Rifle ammunition.—A few rounds per rifle should be allowed for those practices designed to bring out the use of the rifle fire of a Lewis gun section.

Mounted action.—The majority of section practices carried out by *Hotchkiss gun* detachments should include movement mounted and dismounting for action.

Changing over of duties.—Although care must be taken not to introduce too many lessons into one practice, some of the later practices could be made more realistic by pooling the ammunition allowance of two or more of the section into one practice and changing over duties so that each man fired his own ammunition allowance.

No. 10.

Object.—To practise the section in advancing by bounds and occupying successive fire positions.

Ammunition.—60 rounds.

Targets.—Two pairs of iron falling plates representing two hostile machine guns.

Method of conducting.—An imaginary situation of a platoon during an attack to be given which would give the section carrying out the exercise the task of advancing and engaging the two hostile machine guns.

The targets should be so placed that one has to be knocked out before the section can advance to a fire position from which it would be possible to engage the other.

The section starts the practice about 700 yards from the target position. After advancing about 200 yards it occupies a fire position and engages the first target.

When the plates representing the first machine gun are hit (or half the number of rounds allowed for the practice have been expended), the section advances about 150 yards to another fire position, where it comes into action against the second target.

Main points for discussion on conclusion of the practice—

Fire effect.

Suitability of fire positions selected.

Quickness of getting into action.

Fire orders.

Observation of fire.

Replenishment of ammunition supply to gun.

Use made of the ground both whilst advancing and in position.

Formations adopted during movement.

No. 11.

Nature of Practice.—Enfilade fire.

Ammunition.—80 rounds.

Targets.—A few falling plates and figures representing enemy riflemen, placed so that they will be approximately in enfilade to the fire position to be occupied; also a surprise M.G. target.

Method of conducting.—This practice should be conducted to represent a section engaging an enemy locality from the flank. To comply with the safety precaution of the range it will probably be necessary for the direction of advance to be at right angles to the line of fire of the range, so that when the section comes into action to a flank the direction of fire will be straight up the range.

The ammunition will be loaded in 8 *magazines* or *strips*, 10 rounds in each, and the officer conducting will decide which members of the section shall carry them, but a *magazine* containing ammunition must not be put on the gun until the section is in action facing a direction in which it is safe to fire. The section should start from a point about 400 yards on the

flank of the 400 yards firing position, and when arriving at that position will come into action to the flank and open fire on the enemy.

When two *magazines* have been fired, a surprise target should be raised about 300 yards away and slightly to the flank to represent an enemy machine gun opening fire on the section. The section commander will then direct fire to be opened on this target, the remaining rounds being expended at it.

Main points for discussion on conclusion—

Fire effect.

Whether fire would have come as a surprise to the enemy post.

Value of fire from a flank.

Fire orders.

Quickness in engaging surprise target.

Disposition of section for protection.

No. 12.

Nature of practice.—Use of light automatic in rear-guard action.

Ammunition.—Three firers of 50 rounds each = 150 rounds.

Targets.—Figs. Nos. 2 and 3.

Method of conducting.—The section will be in position representing a section fighting a rear guard action.

A group of Fig. 2 targets will be exposed about 800 yards from the section position to represent the main body of the enemy's advanced guard crossing a bridge or moving along a village street in close formation. Prior to this, and also concurrently, a few scattered groups of targets should be

exposed nearer to the section, representing the enemy's van-guard. Fire should be opened with the light automatic at the group of Fig. 2 targets, and within 10 seconds of opening fire the group should be presumed to have deployed, and other targets should appear representing the survivors advancing in more open formation. There should then be a pause representing the enemy developing this attack, and when the time comes to break off the engagement the light automatic should cover the withdrawal of the remainder (imaginary), engaging targets which are in a position to molest the withdrawal. The possibilities of actually carrying out the withdrawal to another fire position depends on the ground available and danger area.

Main points for discussion on conclusion of practice—

Fire effect.

Choice of targets.

Fire orders given.

Control of fire.

Method of withdrawal.

Selection of position to withdraw to.

No. 13.

Nature of practice.—Rôle of light automatic immediately after capture of objective.

Ammunition.—60 rounds for gun.

Targets.—Fig. No. 1.

Method of conducting.—A position about 500 yards distant from the target position will represent an enemy locality which has just been occupied by the rifle sections of the platoon. The light automatic section will be about 300 yards away in a position presumed to be that from which they would have

covered the assault. The section will advance to cover consolidation, and when they reach the position, targets will be raised about 400 yards away representing an enemy counter-attack.

The targets should be exposed to represent sections in open formation.

Main points for discussion on conclusion of practice—

Fire effect.

Quickness in moving to captured position.

Quick engaging of counter-attack.

Fire orders given.

Type of fire.

Action of remainder of section.

No. 14.

Nature of practice.—Light automatic in defence.

Ammunition.—60 rounds for gun.

Targets.—Groups of disappearing figures.

Method of conducting.—The section will occupy a position, dug in if possible.

The officer conducting will define the limits of the sector the section is to cover.

Small groups of targets will be raised and lowered from pits at unknown distances, mainly between 300 and 600 yards from the section position. The exposures should be irregular.

Main points for discussion on conclusion of practice—

Fire effect.

Elevation used.

Choice of targets.

Fire control orders.

Disposition of section.

Method of ammunition supply.

APPENDIX II.

HANDBOOK FOR THE .303-IN. LEWIS MACHINE GUN. MARKS I AND II.

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.303-INCH LEWIS MACHINE GUN, MARK I (PLATE C.)	323

.303-INCH LEWIS MACHINE GUN, MARKS I AND II.

1. Nomenclature.

The following is the nomenclature of the parts of the gun:—

1. **Barrel.**—With barrel mouthpiece* and band for attachment of gas chamber.

2. **Body.**—With ejector and ejector cover; body locking pin; pinion casing hinge pin; and safety catch plates, left and right.

3. **Body cover.**—With cartridge guide spring, Mk. I, or cartridge guide with spring; and magazine stop pawls, No. 2, right, and No. 1, left, and spring.

4. **Bolt.**—With two extractors and feed arm actuating stud.

5. **Butt.**—With butt cap and screw; butt plate and two screws; butt swivel and four screws; and oil bottle.

6. **Clamp ring.**—With screw and foresight.

7. **Feed arm.**—With pawl and spring; and latch.

8. **Gas chamber.**

9. **Gas regulator.**—With key.

10. **Handle, cocking.**

11. **Pinion casing.**—With pinion; return spring and casing; hub; tension screw; and pinion pawl, axis pin, and spring.

12. **Piston rod.**—With rack and fixing pin; striker and fixing pin.

* Or flash eliminator with locking collar.

13. Radiator.

14. Radiator casing.—*Front*, with *band* and *sling swivel*; and *rear*.

15. Tangent sight.—With *axis pin*, *washer* and *split pin*; *leaf*; *spring*; *slide*; and *elevating screw* and *milled head*, *keeper pin*, and *check spring*.

16. Trigger guard and pistol grip.—With *trigger*; *trigger axis pin*; *trigger spring*; *plunger*; *sear*; *sear axis pin*; *butt catch* and *spring*; and *butt catch fixing pin*.

The following is the nomenclature of the parts of the magazine :—

17. Magazine.—With *pan*; *separating pegs*; *centre disc*; *centre block*; and *catch with spring*.

2. General description.

Weight of gun, about 26 lbs.

Length of gun, $50\frac{1}{2}$ inches.

Length of barrel, $26\frac{1}{4}$ inches.

Number of grooves, 4.

Twist of rifling, right-handed.

Weight of magazine empty, $1\frac{1}{2}$ lbs.

Weight of magazine full, $4\frac{1}{2}$ lbs.

Weight of canvas carrier pouches, magazines and braces (set), 3 lb. 14 oz.

Weight of mount, field, Mk. III, about $2\frac{3}{4}$ lbs.

The gun is worked automatically by two forces :—(1) The pressure of the gas resulting from the explosion of the charge; (2) the return spring.

The gun is divided into two portions, the stationary portion and the moving portion.

(1) Stationary portion.

The stationary portion consists of :—

(a) The barrel group.

(b) The body group.

(a) The barrel group consists of :—

1. The barrel,* which at its front end is threaded in the reverse direction to the rifling to take the *barrel mouthpiece*.† The latter serves to keep the radiator in position on the barrel and to direct the gases outwards on to the front radiator casing, thus drawing cold air through the casing and tending to reduce recoil. At a point 4 inches from the muzzle a gas-vent is bored through the bottom of the barrel to allow a portion of the gases to pass into the gas chamber. A band, encircling the barrel and carrying a boss tapped internally for the reception of the threaded part of the gas chamber, is provided to connect the gas chamber to the barrel. At its rear end the barrel has a square thread for the attachment of the body, and immediately in front of this is a stud which enters a slot in the radiator and ensures that barrel and radiator are in their proper relative positions.

On the rear face of the barrel are projections which support the base of the cartridge, and a groove which assists to guide the bullet into the chamber.

2. The radiator which surrounds the barrel is of aluminium with projecting flanges which, by increasing the area exposed

* Barrels which are a special issue for air service have a flat cut near the muzzle, on which are stamped the letters "A.S." These barrels must not be used in ground service guns.

† A flash eliminator with locking collar has recently been introduced. It replaces the barrel mouthpiece in guns arranged to take it.

to the air, assist in dissipating the heat of the *barrel*. Underneath, towards the front end, is a *recess* to allow the assembly of the *gas chamber*, and at the rear the *radiator* ends in a *flat* over which a corresponding flat surface on the *radiator casing* lies, thus keeping both in position. The *radiator* is split longitudinally and is sprung on to the *barrel*.*

3. The *radiator casing* is in two parts. The rear portion is cylindrical and bored to allow the *gas regulator* to pass through it. About 4 inches in rear of the *gas regulator* is a hole, with a raised edge, for the *stud* of the *gas regulator key* when the latter is sprung into position. On the upper side at its rear end the radiator casing forms a flat surface to engage with a similar surface on the *radiator*, and beneath this, through the end face, are holes for the *barrel* and *gas cylinder*, also a recess for the front of the *body locking pin*, and a *flange* to assist in locking the *body*.

The *front radiator casing* tapers to a reduced diameter, and projects beyond the *barrel mouthpiece*. A fitting for a *sling* fits on to the *front radiator casing* just in front of the *radial shoulder*. It consists of a *band* which has an opening at the lower end to receive a *swivel* for the *sling*. A *clamping screw* serves to secure the *band* and also acts as a pivot for the *swivel*.

4. The *clamp ring* joins the two portions of the *radiator casing*, a *stud* on the inner surface of it engaging with suitable *recesses* in both portions. The ends of the *clamp ring* are turned up to form *protecting wings* for the *foresight*, the inner portion of the right wing forming the *foresight block*, with a dovetail *groove* for the reception of the *foresight*. The

* A groove for the projections on the collar of the flash eliminator is cut in the front end of the *radiator* in guns arranged to take the eliminator.

clamp ring screw passes through both wings and holds the *ring* in position. The latest screw (No. 2) is $\frac{1}{4}$ -inch longer than the original pattern (No. 1) and its head is of smaller diameter. It was introduced to facilitate the removal and re-assembly of the *clamp ring* and *front radiator casing*, as with this screw the *clamp ring* can be opened out sufficiently without completely unscrewing the screw from the threaded portion of the *clamp ring*.

The *foresight* is of blade pattern.

5. The *gas chamber* screws into a *boss* on the *barrel band*, and its *nipple* enters a recess in the *barrel* at the *gas-vent*. Its rear face is drilled to communicate with the *gas cylinder*, which screws on to this part. Underneath, the *gas chamber* is open and is tapped to receive the *gas regulator*. It is provided with two *wings* for the engagement of the *spanner* used in stripping.

6. The *gas regulator** screws into the *gas chamber* and has two circular holes, either of which can be turned so as to correspond with the hole in the rear face of the *gas chamber*.

As one of these holes is slightly larger than the other, the amount of gas which is allowed to pass into the *gas cylinder* can be varied and the power increased or decreased slightly at will. The letters "L" and "S" on the head of the *gas regulator* indicate the position of the holes. The head of the *gas regulator* has a rectangular hole into which the squared portion of the *gas regulator key* fits. The other end of the key has a *stud* which springs into the corresponding hole in the rear *radiator casing* and prevents the *regulator* turning,

* *Gas regulators* which are a special issue for air service have a saw-cut in the under surface, and are marked "A.S." They must not be used in ground service guns.

while a loop is provided which enables the point of a bullet or *combination spring balance* to be used to disengage the *stud* and free the *key*.

7. The **gas cylinder** is of steel, and is tubular, the bottom part being shaped at the rear end to allow the *rack* on the *piston rod* to enter. Its front end screws on to the *gas chamber*, and its rear end fits into the end face of the *rear radiator casing*.

(b) The body group :—

1. The **body** screws on to the *barrel* and is retained in position by the **body locking pin** which is housed on the underside of the front end of the body. This *pin* has *grooves* cut into it to allow of its being pushed forward or backward with the point of a bullet for *stripping* purposes. A *slot* is cut in the side of its housing for the insertion of the point of the bullet. In rear of the housing is the *pin* on to which the *pinion casing hooks*. The underside of the *body* has openings cut in it to allow of the entry of the *pinion*, of the *plunger* and of the *sear*, and it has *guides* for the reception of the *trigger guard*, which has corresponding *guide grooves*.

In rear of these is a transverse *groove* into which a corresponding *projection* on the *butt cap* enters.

On either side of the *body* are *slots* in which the *shank* of the *cocking handle* travels. The *cocking handle* can thus be used on whichever side of the gun may be more convenient. **Sliding plates**, each having a *finger piece*, are provided to close the *slot* which is not in use.

Recesses in these *plates* make them also a safety device as, if the *plate* on the side on which the *cocking handle* is inserted be raised, the *recess* engages with the *shank* of the *cocking handle*, preventing it and the *piston* from moving. The rear

recess is undercut for the purpose of preventing the *side plate* from being lowered should the *trigger* have been pressed with the *safety catch* up. On the right side of the *body* is the opening for ejection of empty cases.

The top of the *body* is flat. At its front end is the **magazine post**. The interior of the *post* is a hollow *cone* which, when the *magazine* is placed in position, disengages the *magazine catch* and frees the outer *pan* from the *centre disc*. Below the *cone* on the left side is a *recess* with which the *hook* of the *magazine catch* engages. The *post* has on its exterior a *key* which serves to keep the *centre block* of the *magazine* from rotating; it has also a *saw cut* which engages the *feed arm latch* and prevents the *feed arm* jumping.

The top of the *body* is slotted longitudinally, the *slot* at its front end taking the shape of the outline of a cartridge, while the rear portion acts as a guide for the *boss* on the *feed arm actuating stud*. In the *slot* are two small *shoulders* which prevent the cartridge dropping into the *body* when it is in position. On the left of this *slot* is the *ejector seating*. The *ejector* is hook-shaped and is pivoted on a *stud* on its under surface which enters a hole in the bottom of the *seating*. *Slots* are cut into the interior of the *body* which allow the head and tail of the *ejector* to project alternately into the *bolt way*. The *ejector seating* is closed by a sliding *spring cover*. The upper surface of the *body* is provided at its rear end with a shallow *groove* in which runs the *stud* on the tail of the *feed arm*, and has various *projections* and undercut portions which retain the *body cover* in position.

Internally the *body* is drilled longitudinally for the *bolt* and the *piston rod*. The *boltway* at its rear end is cruciform, the arms of the cross forming *guideways* for the *lugs* on the

bolt and on the *feed arm actuating stud*. *Recesses* in them serve to retain the *butt cap* when rotated into position. At the front end of these *guideways* are *recesses*. When the *bolt* is rotated the *lugs* on its rear end enter these *recesses*, which take the shock of discharge.

The channel for the *piston rod* is flat bottomed to accommodate the *rack*.

2. The **body cover** is shaped to fit on top of the rear portion of the *body*. At its front end is a projecting **tongue** on the underside of which is the seating for the *cartridge guide spring Mark I*, or *cartridge guide*. Under the front part of the *cover* proper are the **axis studs** for the two *stop pawls*. *Projections* are provided on either side which engage with similar surfaces on the *body* and hold the *cover* in position.

The **cartridge guide spring** (or **cartridge guide**) is held in position by an *undercut recess*, and has a *stud* which fits in a hole in the *tongue*. The left *leaf* is turned over; in the case of the *cartridge guide* the right *leaf* is hinged and operated by a *flat spring*.

The *magazine stop pawls* pivot on *studs*, the No. 2 *pawl* on the right fitting underneath the No. 1 on the left. The head of the No 2. is enlarged to bring it level with the underside of the *cover*.

The **stop pawl spring** lies behind the *pawls*, and a *stud* on its back fits in the *rib* behind it. Part of the left of the *spring* is turned over to embrace the *right stop pawl*.

On the upper surface is the **backsight bed**, carrying the *tangent sight leaf* hinged at its rear end, and a *flat spring* to hold the *leaf* in position. The *bed* is fixed by a *screw*.

3. The **tangent sight** consists of a *leaf*, on the *uprights* of which the graduations are marked, and a *slide* which works

between the *uprights*. This *slide* is of *aperture pattern*. At the back of the right-hand *upright* is the *elevating screw*, which passes through the *slide* and is operated by a *milled head*. On the under surface of the *milled head* are *recesses* which engage with the *nib* of a *small check spring* housed in the *milled head*; these *recesses* prevent the *slide* moving from the position at which it is set.

4. The **pinion casing** is shaped to contain the *pinion* with its enclosed *spring*. At its front end is the *hook* which engages it to the *body*; this *hook* is recessed at its front end to allow of the removal of the *pinion casing* without disconnecting the *body* from the *barrel*. At its rear end is the **pinion pawl** which prevents the *spring* unwinding when the *pinion* is not engaged with the *rack* (e.g., when the *pinion* and *casing* are allowed to drop prior to altering the tension of the *spring* or when the gun is being stripped). The downward arm of this *pawl* has a *rib* which engages with the *pinion*, and behind this arm is a *wire spring*. The horizontal arm of the *pawl* projects from the *casing* and is lifted by the front end of the *trigger guard* as the latter is slid into position.

The assembling of the *trigger guard* thus removes the *rib* on the downward arm of the *pawl* from engagement with the *teeth*. In this way it leaves the *pinion* and *spring* controlled by the *rack*. The sides of the *casing* are drilled to take the **tension screw**, with two flanges to retain the head of the *screw*.

5. The Mark I **trigger guard and pistol grip** consists of a frame which is channelled to contain the *plunger*, *trigger*, *sear* and *butt catch*, while it is extended downwards to form the bow of the *trigger guard* and the *pistol grip*. Externally, the frame has *guide grooves* to connect it with the *body*, while

at its front end is the *recess* for the *arm* of the *pinion pawl*. In the channel lie the **plunger**, which acts as a cover for the **trigger spring**. In the side of the plunger is a *slot* for the front end of the **trigger**. The **trigger** is pivoted on its *axis pin*, with its front arm engaging the *plunger* and its rear arm forming a jaw. The front end of the *sear*, Mark I, is engaged in the *jaw* of the rear arm of the *trigger*, while the *block* at its rear end forms the *nose* of the *sear*. The *sear* also is pivoted on an *axis pin*. At the rear end of the channel is the **butt catch** in the interior of which is its *spiral spring*, the whole being kept in position by a *fixing pin*. The **butt catch** has a *tooth* projecting downwards which engages with a *recess* in the *butt cap* when the latter is rotated into position.

The No. 2 *catch* has a projecting *thumbpiece* to enable it to be disengaged without the aid of a cartridge.

Mk. II. trigger guard (for Air Service Lewis .303-inch machine guns) differs from **Mk. I** in that the *bow* which guards the *trigger* is enlarged, and is detachable from the frame of the *guard*.

Its rear end engages in a *groove* in the front of the *pistol grip*, and its front end is secured by a *fixing pin screw*.

The **trigger spring** and **plunger** are omitted. The **Mark II sear** differs from the **Mark I sear** in that it is recessed on the under side near the end which engages the *bent* on the *piston rod*. The upper end of a *spiral spring* seats in this *recess*, and its lower end on the bottom of the *groove* in the top of the *trigger guard*.

6. The **butt** performs the function of closing the rear end of the *body*. It is of wood and shaped like the butt of a rifle. It carries on its front face the **butt cap**, which acts as a stop for the *bolt* and *piston rod*, and serves to keep the *body cover* from working backwards.

The *butt cap* is provided with projections for attaching it to the *body*, and a recess is provided in the lower one into which the *tooth* of the *butt catch* enters, locking the whole in position.

An *oil bottle* with *milled head* and *oil brush* is fitted vertically through the thick part of the *butt*. A *sling swivel* is fitted just forward of the *oil bottle* on the underside of the *butt*.

(2) Moving portion.

The moving portion consists of:—

1. The **piston rod**, which is in two parts. A small amount of play is allowed at the junction to permit the *rod* to accommodate itself to any slight want of alignment between the *cylinder* and the *body*. The *head* of the *rod* is cupped and provided with *annular grooves*, the *rings* between which reduce to a minimum the passage of the gas past the *head*, tend to scrape away any fouling which accumulates, and minimise friction. The rear part of the *rod*, which is joined to the front portion by a *fixing pin*, is formed as a *rack* as regards its under surface, and in rear of the rack is the *bent* which engages the nose of the *sear**. On the upper surface of the *piston rod* is the **striker post**, which engages in the *camway* in the *bolt* and operates the mechanism. The upper end of the *post* is drilled longitudinally for the **striker**, which is secured by a *fixing pin*. A *slot* is cut through the *rod* towards the rear end to allow the *shank* of the **cocking handle** to enter.

The *shank* is ribbed to make it grip the sides of the *slot* in the *body*.

* In the gun for air service a *plug* and *volute spring* are inserted in the rear of the *rack*. The *spring* must be removed before such *rods* are used in ground service guns.

2. The **bolt**, which is cylindrical. Its *face* has a *rim* which supports the base of the cartridge and in which gaps are cut for the two **extractors**, which lie in longitudinal *recesses* cut in the surface of the *bolt*. The *extractors* are flat *springs* with a *hook* on the *head* to engage with the rim of the cartridge and a *stud* which enters a *recess* in the *slot* in the *bolt*, and takes the pull of extraction. The *tail* is sprung into the rear end of the *slot*, which is grooved and thereby tends to keep the *hook* pressed inwards. Between the *recesses* for the *extractors* a *slot* is cut in the rim to allow the *head* of the *ejector* to enter. Behind the *face*, the *bolt* is hollow, and has a *cam-shaped slot*, in which the *striker post* travels. At the rear end of the *bolt* are four *lugs*, which take the shock of discharge, and it is here tapped internally to take the *feed arm actuating stud*. A *Mark II* extractor with a separate *spring* has been approved for future manufacture.

The *extractor* is shorter, and is stepped on its upper surface immediately over the circular *stud*; the shoulder thus formed is undercut, and forms an abutment for the front end of the *spring*. The *tail end* is tapered off to the rear, and the under corner at this end acts as a fulcrum on the surface of the *recess* in the *bolt* of the gun when the *hook* is raised against the pressure of the *spring*. The corners at the *hook* end are well rounded off.

The *spring* is similar in shape to the spring portion of the *Mark I* extractor, and its rear end is formed to fit into the "T" slot in the *bolt* in the known manner.

So far, issue of the *Mark II* pattern has been made to R.A.F. only, who have priority of supply.

3. The **feed arm actuating stud** screws into the rear end of the *bolt*. It is prevented from turning by *lugs* which work

in *guideways* in the *body* and by the *boss* on its upper part, which travels in the longitudinal *slot* in the top of the *body*, and which causes the necessary motion of the *feed arm*.

4. The **feed arm** has at its front end the *axis hole* which passes over the *magazine post*, with a *recess* to clear the *key* on the *magazine post* when stripping or assembling

A hinged *latch* secures the *feed arm* on the *post* by engaging in the *saw-cut* thereon. In rear of the *latch* is the *slot* through which the cartridge passes from the *magazine* to the *body*. This *slot* has a raised *stop* on the left side to hold the cartridge in position during the motion of the *feed arm* to the left. At the rear end of the *slot* are three *studs*, that on the right being the *axis stud* for the *feed arm pawl*, the one in the centre being a *stop* for the *pawl*, and that on the left being the *stud* for the *pawl spring*. The latter also presses the *right stop pawl* back during the motion of the *feed arm* to the right. The **feed arm pawl*** is provided with a hole for the *axis stud*, and has a *slot* in which the *spring* lies. On its under surface is a *recess* in which the *stop stud* lies when the *pawl* is at rest, and also a *stud* for the loop at the end of the *spring*. The *spring* is of wire and is hook-shaped. The *tail* of the *feed arm* is curved, and its under surface is grooved to receive the *boss* on the *feed arm actuating stud*. At the end of the *tail* is a *stud* which engages with the top *lug* of the *bolt* when the latter reaches its limit of movement to the rear, thus holding the *feed arm* in position until the *boss* on the *feed arm actuating stud* again enters the groove in the *tail* of the *feed arm*.

* The *Mark I** *pawl* which was originally introduced for *Mark II* (97 round, air service) *magazines*, and since approved for all guns, projects further forward than the *Mk. I* pattern.

5. The **cartridge guide** is housed and held similarly to the *cartridge guide spring, Mark I*, and differs from the latter in that the *lip* which engages with the cartridge is hinged to the right side of the *body* of the *guide*. A *spring* is fitted into the *body* of the *guide*, the free end pressing downwards against the *lip*. The *cartridge guide spring, Mark II*, is therefore a component of the *cartridge guide*.

6. The **magazine stop pawls*** pivot on the *studs* under the front end of the *body cover*. The *left pawl* (No. 1) lies above the *right one* (No. 2), but the *head* of the latter is enlarged to bring it also level with the underside of the *cover*. The flat *spring* lies behind the *pawls*, with a *stud* on its back which enters a *hole* in the transverse *rib* behind it. A portion of the sides of the *left-hand arm* of the *spring* are turned over so as to embrace the *pawl*.

7. The *pinion* is hollow with a central hole. Internally it has a shallow *recess* into which a corresponding *projection* on the *spring casing* enters, causing the two parts to move as one. The *spring drum* has a central *hub*, through which the *tension screw* passes, and to which one end of the *return spring* is attached. The other end of the *return spring* is made fast by two *studs* to the *rim* of the *spring casing*. The *return spring* is a flat coiled *spring*.

8. The gun is supplied with cartridges from a circular *magazine* holding 47 cartridges. There are eight patterns of the *Mark I* magazine, differing in certain details. Of these, Nos. 1, 2†, 5, 6, and 8 are only for ground service. The

* The *Mark I* *pawls*, originally introduced for *Mark II* (97 round, air service) *magazines*, and since approved for all guns, project further outward from the *body cover*.

† Nos. 1 and 2 *magazines* are now obsolescent.

general principle of all patterns is that the *magazine* consists of a *pan* on whose *rim* are formed *rectangular indentations*. On the inner surfaces of these *indentations* are riveted, or welded, *plates*, which serve to hold the base of the cartridge. The centre portion of the *pan* is cut away and over this hole is riveted a ring carrying 25 *pegs*, which hold the cartridges in position and, in conjunction with the *recesses* between the *indentations*, force them round as the *pan* is rotated. On the inner circumference of the ring and *pan* are 25 *recesses* for the *nib* on the end of the *magazine catch*.

Over the central hole is a steel *centre disc* in which is formed a *channel* for the *magazine catch* and *spring*.

Internally the *magazine* has a *centre block* with two *channels* cut in it in which the bullet ends of the cartridges lie. The two *channels* are joined by a *slope*, and a similar *slope* leads out from the lower *channel*. In its centre is a hole which forms the socket for the *magazine post* and in which is the *hook* of the *magazine catch*. A *keyway* is cut to engage the *key* on the *magazine post*.

Magazines Nos. 1 and 2, and also Nos. 5, and 6, of earlier manufacture, have that half of the *centre disc* which is nearest the firer painted white for ready identification of location when assembling them to the gun. Later supplies of Nos. 5 and 6 are not painted, the shape of the *catch* in these and in the No. 8 being found sufficient for the purpose.

In order to allow the *magazine* to be removed from the gun with one hand, when circumstances render such action necessary, a hole has been bored in the centre of the *bend* at the lower or engaging end of the *catch* in latter supplies of Nos. 5, 6 and 8 *magazines*, to which a leather bootlace, &c., can be attached. A convenient method for attaching the lace is

to pass one end through the hole from the top, and to tie a knot in that end sufficiently large to prevent it from being drawn through the hole. The free end of the lace may be tied to form a loop to take the hand; the *catch* can then be released and the *magazine* removed from the gun simultaneously.

3. Description of accessories.

1. **Cleaner, gas regulator.**—The *cleaner* is a steel tool with a wood handle; it is provided for removing fouling which has accumulated in the *gas regulator*.

2. **Handle, loading magazine.**—The *handle* is about 6 inches long. One end is similar in shape to the *magazine post* on the *body* of the gun. It is used when filling *magazines*. It is inserted into the underside of the *centre disc* in such a way as to press the *magazine catch* out of engagement with the *recesses* on the *pan*, so allowing the *pan* to be revolved and filled.

3. **Plug, clearing, Mark I.**—The No. 1 *clearing plug* is of steel, and is used for the removal of a separated case from the *chamber*.

The No. 2 *clearing plug* differs from the No. 1 in that the end of the handle is formed into a *jaw* for use as a hand extractor, to remove a live or empty cartridge from the *chamber*.

To remove a separated case, insert the *tapered portion* of the clearing plug, with the *centre pin* pushed back, into the *chamber*. Push the *pin* well home by allowing the *bolt* to go forward. Then, keeping a firm pressure on the *cocking handle* give the *clearing plug handle* an up and down rocking motion, pull back the *cocking handle*; lever back the *handle* of the *plug*, and withdraw the *tapered portion* of the *plug* from the *chamber*.

The front portion of the separated case will be found adhering to it. Knock the *centre pin* back and remove the separated case.

4. **Washer, packing barrel.**—This *washer* is .005 inch thick, and is provided in order to take up the play which occurs between the *rear radiator casing* and the *body* in the case of guns in which the thread on the *barrel* has become worn.

The *washer* (or *washers*, as may be required) is assembled to the rear end of the *barrel* against the *flange*. It is secured in position by the *rear radiator casing* when the latter is assembled.

The fitting of the *washer* or *washers* should not prevent the *body* from being screwed home to the *barrel* and *rear radiator casing* by hand.

5. (a) **Jack screw, removing barrel with collar.**—The *jack* is arranged to screw on to the *breech thread* of the *barrel* after the *collar* is inserted between the *jack* and the *radiator*.

When assembled in position for removing the *barrel*, the projecting *arm* of the *jack* is given a sharp blow. This action will loosen the *barrel* from the *radiator* and it can be then withdrawn. This tool is supplied for the use of armourers only.

(b) **Jack, screw, assembling and removing barrel.**—This *jack* differs from that for removing the *barrel* in that it is closed at one end to form an anvil which may be struck with a hammer or other convenient implement, in order to drive the *barrel* home into the *radiator*.

Care must be taken to ensure that the *jack* is screwed right home to the face of the *barrel* before it is struck, as otherwise the thread on the *barrel* is liable to injury.

The steel collar above described will be used with this jack for removing the barrel.

The new pattern jack will replace the old and will be issued for use in the proportion of one to each company as supplies become available.

6. Adapter, .303-inch Lewis machine gun.—This consists of a manganese bronze cradle with holes for the cross-head and elevating joint pins of the service machine gun tripod and cone mountings.

On its upper surface is a jointed ring which embraces the ring of the rear radiator casing. This ring is closed by a clamping screw and nut.

The adapter enables the gun to be fitted to the mountings, but is no longer issued to units.

7. Sights, luminous, fore and back.—These sights are used for night firing.

The foresight is clamped to the protecting wings of the foresight in the clamp ring of the gun, and is positioned by the gun foresight. The vertical blade contains a luminous tube exposed so as to be seen from the rear end of the gun.

For protection when off the gun, these sights are carried in a small tin box fitted to take them. The box is carried in the spare parts bag.

8. Mount, field, .303-inch Lewis machine gun, Mark III.—The mount consists of a gun band and two legs. The gun is held in the band by a clamping screw and wing nut. It can be rotated when in position through an angle of 36 degrees to admit of the sight being vertical when on uneven ground.

The legs, which are of tubular steel, are telescopic and can be clamped at the desired height by clamping screws.

Each leg has a spike and hinged curved shoe. When the spikes are embedded in the ground the shoes automatically splay out, owing to their curved shape, and give rigidity to the mount when in use. When not in use the legs can be folded under the gun and retained in that position by a spring clip.

9. Chest, Vickers or Lewis .303-inch machine guns, Mark II.—The chest is issued to take either Vickers or Lewis .303-inch guns with certain spare parts. Each chest is, however, so marked before issue as to show which type of gun it contains. It will take the Lewis gun, either with or without the spade handle grip assembled, but not with the butt stock, the latter being carried separately in the chest, but attached to the gun by a sling.

The lid is hinged and is fastened with two hasps and turn-buckles. A rope handle is attached at each end of the chest by a cleat. The chock which is provided for the front end of the gun is made reversible in order to meet the difference in size of the radiator casing of the Lewis gun, and the barrel casing of the Vickers gun respectively. The central fitting in the bottom of the chest is hinged in order to provide a seating for the Lewis gun with or without the adapter for mounting the gun on Service mountings.

A small number of chests of Mark I pattern have been made. These differ only in the depth, which is $\frac{1}{4}$ -inch greater.

The chests take the contents for the Lewis gun as shown on pages 405 et seq. The band radiator casing is assembled to the gun with the sling attached.

The weight empty is about 38 lbs.

The weight filled is about 83 lbs. (including the adapter, weight 5 lbs.).

10. **Bag, spare parts and tools M.G., Mark I, II and III.**—The *Mark I bag* is of leather and is provided with an adjustable leather shoulder strap. It has an inner and outer flap to prevent articles from jolting out. The inner flap is fastened by a *stud* and the outer by *two straps and buckles*.*

The *Mark II bag* differs from the *Mark I* in that it is made of canvas with either a leather or canvas shoulder strap and gusset. The outer flap of this bag is fastened by *quick releases*.

Internally, they are fitted with pockets to take the stores enumerated in Sec. 5 of this Appendix.

The *Mark III bag* is larger, the gusset being wider; the flap and its strap are longer. Two additional pockets are provided, and one of the original pockets is enlarged, while a strap is added in order to hitch up the front of the bag when filled.

A "No. 2" bag of this Mark, which will supersede "No. 1," in due course, is also provided with a hood on each side of the flap to cover the upper corners of the bag and to prevent loose parts from being lost.

11. **Cover, Lewis machine gun.**—The *cover* is made of khaki-coloured canvas, and is shaped to fit round the *breech* of the gun from the small of the *butt* to the *mounting ring* on the rear radiator casing.

It is closed along the top of the gun by five *quick releases*. Inside the left-hand side is a loose canvas *flap* which is placed under the right-hand side to exclude rain.

12. **Carrier, magazine, Lewis 303-inch machine gun, Mark I.**—The *carrier* consists of a cylindrical khaki-coloured canvas bag about 9 inches in diameter and 12 inches deep.

* The *Mark I bag* is now obsolete.

A ring of cane is sewn round the bag about 5 inches from the base. Another similar ring, or disc, of wood or fibre is inserted in the base to stiffen the bag and provide protection for the magazines.

A loop of webbing is sewn round the bag vertically, the upper portion forming a handle for carriage.

At one side of this handle is a loose web strap with a buckle at the free end of it so that two carriers can be joined together and carried over the shoulders.

The bag holds four *Mark I magazines* and is closed by two turn-buckles and two eyelets.

(ii) **Pouches, magazines, web and braces.**—Both articles are made throughout of woven web, and the buckles are of the tongueless pattern.

The *pouch* is designed to hold two *magazines*. It is circular in shape and is about 9 inches in diameter when closed. Four *pouches* form a set.

The *braces* are issued two to a set. Each consists of a strip of webbing $27\frac{1}{4}$ inches long and 2 inches wide.

The *pouches* and also the *braces* are interchangeable.

Instructions for assembling and fitting.

Note.—The set consists of *two braces* and *four pouches*.

Fasten the ends of the *braces* to the 2-inch buckles on the *pouches* by first passing the end of the *brace* up through the top opening of the buckle, down through the centre opening, up through the bottom opening, and then under the top bar of the buckle.

When the *braces* (which must not be crossed) have been suitably adjusted, the back should be connected by fastening the 1-inch web strap of one *pouch* to the 1-inch buckle on the opposite *pouch* worn on the back.

The front *pouches* should be connected to the back *pouches* in a similar manner, the fastening being at either side of the wearer. The equipment when assembled as above is now ready to put on the wearer. It can be secured in front like an ordinary waistbelt by means of the web straps.

Carriage of the pouch and braces.—See Appendix VIII.

(iii) **Box, carriers, magazine.**—The *box* is made of sheet steel of the following dimensions:—19 inches by 10 inches by 7 inches. Internally, it is divided in half by a partition. A pocket is provided in one corner for a *magazine loading handle*. The *lid* is hinged and is provided with a leather handle for carrying and is fastened by a *spring catch lock*.

The box holds eight filled *magazines*, either in two *magazine carriers* or four *pouches* with *braces*.

13. **Spanner, barrel mouthpiece.**—The *spanner* consists of a flat piece of steel with *jaws* at one end to fit the slots in the *barrel mouthpiece*. A gap is cut at the other end to take the *positioning stud* in the *clamp ring* of the Mark I guns.

14. **Eliminator, flash, Mark I.**—This consists of a hollow conical *mouthpiece*, bevelled off on one side at its outer end and with its inner, or rear, end arranged similarly to that of the *barrel mouthpiece*.

A locking *collar* is supplied to secure it in the desired position. When assembled it projects about $4\frac{1}{2}$ inches from the muzzle of the *barrel*.

It is necessary to cut a *groove* in the front end of the *radiator* to take *projections* on the *locking collar*. This work will be

carried out by duly qualified armourers or artificers in accordance with the instructional print No. A.I.D./1711.

To assemble the *eliminator* to the *barrel* the *locking collar* will be placed on the *barrel* with the inner *projections* fitting in the *grooves* of the *radiator*. The *eliminator* is then screwed on by means of the *spanner* and, when fully screwed on, one of the outer *projections* on the *locking collar* is bent to engage in one of the *recesses* on the *eliminator*.

(When fitted to air service guns, a locking *nut* and *spring washer* are used, instead of the *collar*, to secure the *eliminator*.)

15. **Sights, fore, A.A., Mark II. Sights, back, A.A., Mark II.**—The *foresight* is constructed of pressed steel of elliptical formation. It has two downwardly projecting legs which are jointed at their lower extremities within ears bent up from a bracket, the latter being riveted to a *gun band* which is arranged to clamp around the *rear radiator casing* of the gun close up to the *clamp ring*.

When not in use in the vertical position, the *sight* can be hinged down on to the *rear radiator casing*.

In order to retain the *sight* in each of these positions, a *rib* is pressed outward on the side of each leg at the joint to engage in corresponding *depressions* in the ears of the bracket, the *ribs* being forced into engagement by a *spiral spring* which lies within the legs and around the *axis pin*.

The *major axis* of the ellipse is $4\frac{3}{4}$ inches, and in the horizontal direction, whilst the *minor axis*, in the vertical direction, is 3.625 inches. The main portion of the ellipse is cut out, in such a manner as to form four large *apertures*, upper and lower. Each large *aperture* is in the shape of a crescent

with the outer arc concentric and close to the rim, and with two inner *apertures*, one on each side of the centre, the sides of which are concentric with the inner arc of the crescents. The inner *apertures* are separated in the centre by a *vertical bar* which connects the two *inner bars* remaining between the *crescents* and the inner *apertures*, and the centre of this *bar* is cylindrical in shape to form a blank *centre disc* of $\cdot 375$ -inches diameter.

The *foresight* is positioned laterally on the gun by means of a barley corn shaped *tongue* pressed up from the *sight* bracket; this is aligned with the *gun sight*.

The *backsight* is an aperture sight, the *aperture* being $\frac{1}{2}$ -inch in diameter.

It is of gunmetal and is shaped to engage in the upper end of the slot in the *tangent sight leaf* of the gun where it is secured by means of a *clamping plate* and *spring washer* which are connected to it by a *screw*. The *sight* is assembled on the graduated side of the *leaf*, whilst the *clamping plate* and *screw*, having the *spring washer* between the *head* of the *screw* and the *plate*, are assembled on the opposite side.

16. Mounting, tripod, anti-aircraft, Mark I.—This consists of a *tripod stand* with collapsible legs, an adjustable *tubular post* to which a carrying *sling* is attached, a *gun holder* and a retaining clip which is assembled to the *gun holder* and is retained in position in the lower of two *grooves* cut in the upper end of the tube.

The *tubular post* is arrested in any one of the positions in which it can be adjusted by means of a *linch pin*, which engages in holes bored in the *post* at equal distances of 2 inches, and rests on the upper surface of the leg bracket of the *tripod*.

Two "Ds" are fixed to the post to take the *sling*, which is common to the service $\cdot 303$ -inch rifle; the upper "D" forming a final stop for the tube in a downward direction, and a *split pin*, just above the bottom "D," the stop in the upward direction.

The *gun holder* assembles into the upper end of the *tubular post*. It is made up of parts of the *Mark III field mount*, and consists of the *gun band* complete with *saddle*, and one *outer leg*, less the lower clamping portion which normally clamps the *inner* or *telescopic leg*.

The *outer leg* is hinged to one of the leg joints in the *saddle* in the usual manner, but the projecting square corners around the joint end of the *leg* are rounded off in order that the *leg joint lugs* on the *saddle* may seat on the upper end of the *tubular post*.

The *retaining clip* is assembled to the leg *hinge screw* of the *holder* and, in order to ensure room for it between the *split pin* and the *joint lug* of the *saddle*, it may be found necessary to reduce the *lug* slightly.

17. Aim corrector, Mark I.—This accessory has been introduced for use in conjunction with the *Mark II anti-aircraft sights*.

It consists of a glass *reflector* in a *reflector box*, identical with those of the *Mark II rifle aim corrector*. The *box* slides on the stem of a *bracket*, which is secured to the *leaf* of the *tangent sight* of the gun (when the latter is upright) between the *tangent sight slide* and the base of the *anti-aircraft backsight*, by means of the elevating *screw*. The position of the *bracket*, when fixed, should be the highest possible on the *leaf*.

When using the aim *corrector*, the observing instructor will be on the right of the gun and can adjust the reflector *box* vertically on the stem as may be necessary to bring the *anti-aircraft sights* in alignment with the objective.

18. **Indicator, range, stadia, M.G.**—The *indicator* is for use with .303-inch machine guns employed in anti-aircraft work to enable the machine gunner to determine whether an aeroplane is within or out of range of his gun.

It consists of a shaped flat piece of steel about $5\frac{1}{4}$ inches long, 2.125 inches at its widest part, and $\frac{1}{16}$ inch thick, and should be held 24 inches from the eye.

It has five holes of varying sizes punched in it. Through the smallest hole nearest the handle portion a cord 24 inches long is threaded, having a small bead retained by a knot at each end.

Instructions for use are issued with each range indicator, and the name of the indicator is enamelled in white letters on a black ground. The back of the indicator is enamelled black all over.

19. **Guns, machine, Lewis, .303-inch, Mark I, skeleton.**—A limited number of unserviceable Lewis guns have been cut to show certain parts of the mechanism which are normally enclosed when the gun is assembled.

20. **Magazines, Mark I, skeleton.**—Unserviceable, No. 6 or 8, Mark I, *magazines* may be cut, as shown in L. of C., para. 24946, for instructional purposes by duly qualified armourers.

21. **Diagrams, large.**—These diagrams are enlarged drawings of certain parts of the gun, mounted on canvas for hanging on the walls of lecture or barrack rooms. These are a Stationery Office supply.

Sec. 4.—Complete set of equipment of the .303-inch Lewis machine gun, Mark I, for Infantry battalions only.†

	For Ground Service Guns.	For A.A. Guns.
Gun, machine, Lewis, .303-inch, Mk. I ...	1	1
Mounts, field, .303-inch, Lewis M.G., Mk. III ...	1	1
Chest, Vickers or Lewis, .303-inch, M.G. ...	1	1
Bag, spare parts and tools, M.G., filled, Lewis .303-inch (for list of spare parts and tools see Sec. 5.) ...	1	1
Braces, pouch, equipment ...	10	2
Boxes, carrier, magazine ...	4	7§
Box, tin, luminous sights ...	1	...
Carriers, magazine ...	2	5
Cover, Lewis .303-inch, M.G. ...	1	1
Indicator, range, Stadia, M.G. ...	...	1
Holder, Lewis .303-inch M.G. mounting, tripod, A.A. ...	...	1
Magazines ...	22*	10
Mounting, tripod, A.A. Lewis or Hotchkiss .303-inch M.G. ...	...	1
Pouches, magazine, web ...	20	4
Sights, A.A., Mk. II —		
Back ...	...	1
Fore ...	...	1
Sights, luminous —		
Back ...	1	...
Fore ...	1	...
Sling, Lewis M.G., web†	1	1
Aim corrector, A.A. ...	...	1

* 2 empty per gun. In addition a battalion reserve of 24 empty magazines.

† Scale of equipment for other arms is laid down in the War Equipment Tables applicable to the units concerned.

‡ Woolwich section 1A.

§ 7 for 2 guns.

Sect. 5.—List of spare parts, tools, and appurtenances for the Lewis gun.

Woolwich Section 16B.	Where carried.	Total.
GUN, MACHINE, LEWIS, .303-IN MARK I.		
Components:—		
Band, barrel	1*	1
Band indicator, casing, front	1	1
Barrel	1	1
Blades, foresight—		
High	1	1
Low	1	1
Bolt	1	1
Butt, Mark III.	1*	1
Cap, Butt, Mark I.*	1*	1
Casing, pinion (assembled)	1	1
Cylinder, gas	1	1
Cover, ejector	1	1
Ejector	1	1
Extractors	4	4
Guides, cartridge	3	3
Handle, cocking	2	2
Head, screw, tangent sight ...	1	1
Key, gas regulator	1	1
Pawls—		
Feed arm	2	2
Pinion	1	1
Stop, magazine, No. 1, left	1	1
Stop, magazine, No. 2, right	1	1

* Per 4 guns, infantry battalions only.

Woolwich Section 16B.	Where carried.	Total.
GUN, MACHINE, LEWIS, .303-IN MARK I.—cont.		
Components—cont.		
Pins—		
Axis, pawl, pinion	2
Axis, sear	2
Axis, trigger	2
Fixing, head, screw, tangent sight	2
Fixing, striker	2
Locking body	2
Regulator, gas	1
Rod, piston, complete	2
Screws, butt cap	2
Screw, clamp ring	1
Sear	1
Springs—		
Head, screw, tangent sight	2
Pawl, feed arm	3
Pawl, pinion	2
Pawls, stop, magazine	2
Return	4
Trigger	1
Striker	1
Tools and appurtenances—		
Bag, spare parts and tools, M.G.	1
Balance spring combination†	1
Box, tin, small parts M.G.	1

† Or balance, spring M.G.

Woolwich Section 16B.	Where carried.	Total.
GUN, MACHINE, LEWIS, .303-IN. MARK I.— <i>cont.</i>		
Tools and appurtenances—<i>cont.</i>		
Brushes, wire rod, cleaning cylinder	6
Cans, oil, M.G.	1
Cleaners, gas regulator	1 (a)
Handle, loading, magazine	10
Jack, screw, assembling and removing barrel (with collar)	1 (b)
Mop, rod, cleaning, cylinder...	2
Plug, clearing	1
Punch, No. 3 (or No. 4) M.G.	1
Reflector, mirror, M.G.	1
Rod, cleaning M.G., Mark II	1
Rod, cleaning, cylinder	1
Screw driver, small, M.G.	1
Spanner, barrel, mouthpiece...	1
Wallet, Lewis .303-in. M.G.	1
Washers, packing, barrel	6
GUN, MACHINE, LEWIS, .303-IN. MARK II.		
Tools and appurtenances—		
WEEDON SECTION		
Gauze, wire, pieces	2
Pull-through, double	1

(a) 1 per 4 guns.

(b) per company.

6.—List of component parts (see Plate C).

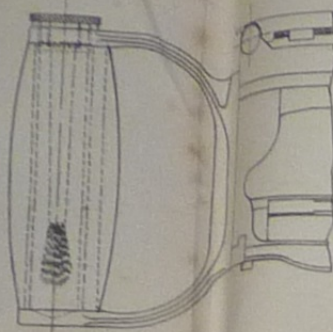
(.303-inch Lewis machine gun.)

- | | |
|-------------------------------------|----------------------------------------------|
| 1. Arm, feed (with latch). | 35. Guard, trigger (and pistol grip) |
| 2. Band, barrel. | 36. Handle, cocking. |
| 3. Barrel. | 37. Head, screw, elevating tangent sight. |
| 4. Bed, tangent sight. | 38. Hub, return spring. |
| 5. Body. | 39. Key, gas regulator. |
| 6. Bolt. | 40. Latch, feed arm. |
| 7. Butt. | 41. Leaf, tangent sight. |
| 8. Cap, butt. | 42. Magazine. |
| 9. Casing, pinion. | 43. Screw, butt cap. |
| 10. " radiator, front. | 44. " clamp ring. |
| 11. " " rear. | 45. " elevating, tangent sight. |
| 12. " return spring. | 46. " tension, return spring. |
| 13. Catch, butt. | 47. Sear. |
| 14. Guide, cartridge. | 48. { Side-piece, pistol grip, right. |
| 15. Mouthpiece, barrel. | " pistol grip, left. |
| 16. Pawl, feed arm. | 49. Slide, tangent, sight. |
| 17. " pinion. | 50. Spring, butt catch. |
| 18. " stop magazine, No. 2, right. | 51. " head, screw, tangent sight. |
| 19. " stop magazine, No. 1, left. | 52. " pawl, feed arm. |
| 20. Pin, axis, leaf, tangent sight. | 53. Pin, fixing, head, screw, tangent sight. |
| 21. " " pawl, pinion. | 54. " locking body. |
| 22. " " sear. | 55. " split, keeper, axis pin-tangent sight. |
| 23. " " trigger. | 56. Pinion. |
| 24. " fixing, rack, piston rod. | 57. Plate, butt. |
| 25. " striker. | " safety catch, right, Mk. I*. |
| 26. " hinge, pinion, casing. | 58. { " safety catch, left, Mk. I*. |
| 27. " keeper, butt catch. | 59. Plunger, spring, trigger. |
| 28. Chamber, gas. | 60. Radiator. |
| 29. Cover, body. | 61. Regulator, gas. |
| 30. Cover, ejector. | |
| 31. Cylinder, gas. | |
| 32. Ejector. | |
| 33. Extractors (2). | |
| 34. Foresight. | |

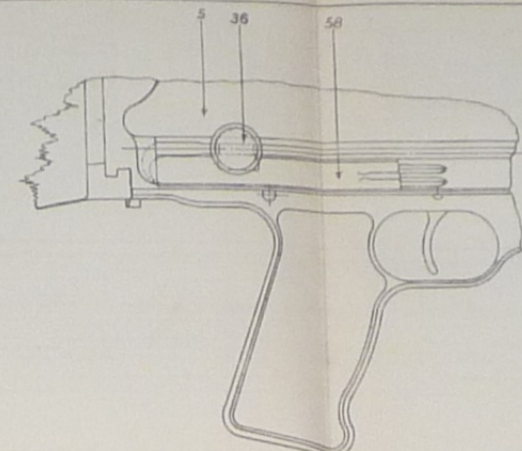
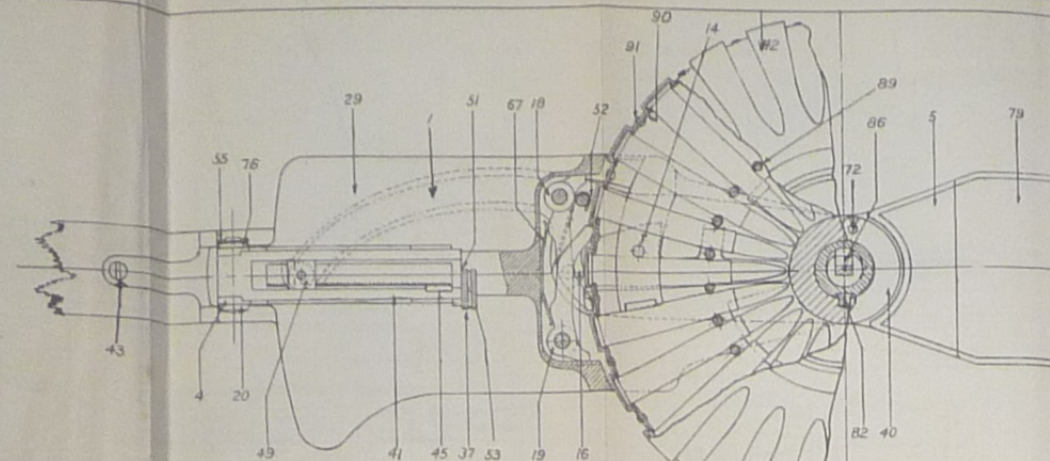
- | | |
|-------------------------------------------|---------------------------------------|
| 62. Ring, clamp. | 70. Spring, trigger. |
| 63. Rod, piston. | 71. Striker. |
| 64. Screw, bed and spring, tangent sight. | 72. Stud, axis, latch, feed arm. |
| 65. „ butt plate. | 73. „ actuating, feed arm. |
| 66. Spring, pawl, pinion. | 74. „ positioning, clamp ring. |
| 67. „ paws, stop, magazine. | 75. Trigger. |
| 68. „ return. | 76. Washer, pin, axis, tangent sight. |
| 69. „ tangent, sight. | |

The following are also shown in Plate C.

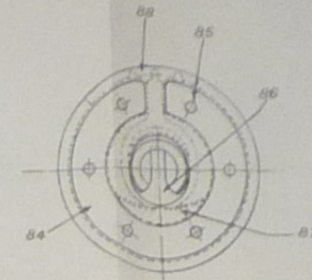
- | | |
|------------------------------------------|---------------------------------------------------------------|
| 77. Slot, cocking handle. | 85. Magazine centre disc rivet. |
| 78. Rack. | 86. „ catch. |
| 79. Locking piece, rear radiator casing. | 87. „ „ spring. |
| 80. Stud on gas regulator key. | 88. Ring, with separating pegs and recesses for nib of catch. |
| 81. Magazine post. | 89. Separating pegs. |
| 82. Key on magazine post. | 90. Cartridgehead retaining plates. |
| 83. Magazine centre block. | 91. Rivets for retaining plates. |
| 84. „ „ disc. | |



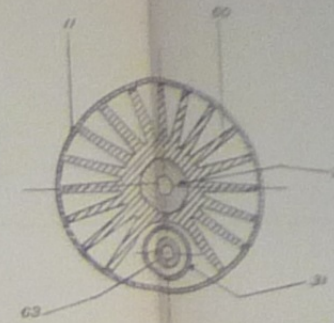
SPADE HANDLE GRIP



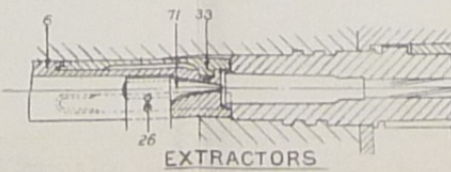
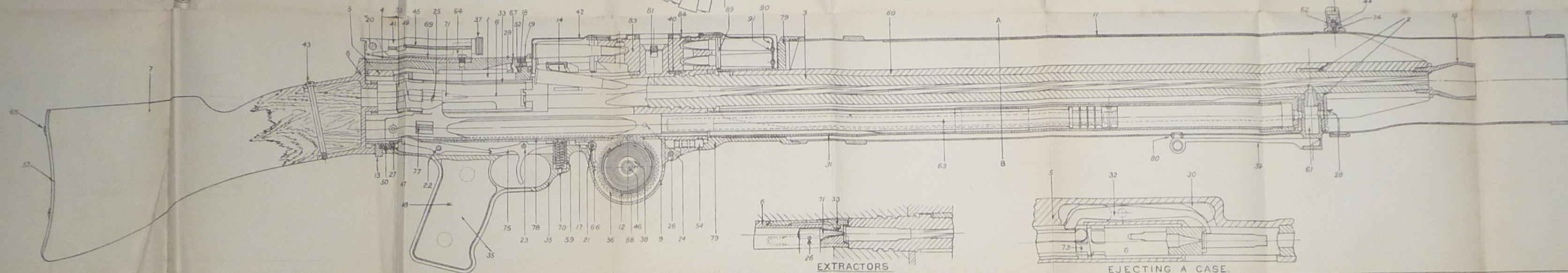
COCKING HANDLE & SAFETY CATCH PLATE



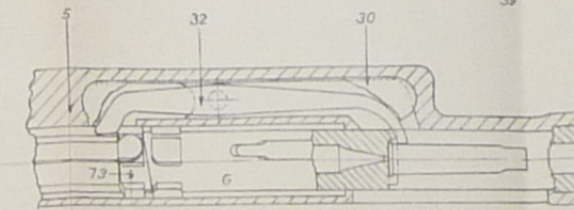
MAGAZINE CATCH AND CENTRE DISC



SECTION THROUGH A B



EXTRACTORS



EJECTING A CASE

APPENDIX III.

HANDBOOK OF THE .303-IN. HOTCHKISS
MACHINE GUN.

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·303-INCH HOTCHKISS MACHINE GUN.*

1. Nomenclature.

1. The following is the nomenclature of parts of the gun :—

Barrel.—With *gas cylinder* ; *gas regulator* ; (*orifice screw*)† and *foresight* with *cover*.

Breech block.—With *extractor* and *spring* ; and *firing pin*.

G. Butt stock.—With two *screws* ; *catch*† and *tube* for *elevating screw* ; and *hinged strap* with two *screws*.

Cocking handle.

Feed piece.—With *spring*.

Fermature nut.

Guard.—With *trigger* ; *sear* and *spring* ; and *locking screw*.

Handguard.—Mks. I and II.

“ T ” **Pistol grip.**—With *screw* and *bolt* with *screw washer* ; and *vulcanite side pieces* with *screw*. Mk. I* is arranged to take the *shoulder piece*.

“ T ” **Shoulder piece.**—(For use with *pistol grip* only). With *T-headed fixing pin* and *leather thong*.

Piston rod.

* Guns issued to the Royal Tank Corps are generally similar to those issued for ground use. Parts and accessories peculiar to the Tank gun are lettered “T,” those peculiar to the ground gun are lettered “G.”

† In certain guns these are omitted.

‡ This *screw* is now cut flush with the *gas cylinder*.

§ Special to Mk. I guns.

Body.—With *locking nut* ; *ejector* with *spring* and *cap* ; *cartridge stop* with *spring* and *holder* ; *feed piece cover* ; and *backsight* with *bed*, *leaf*, *slide*, and *slide catches*. Mk. I* *body* is arranged for either *strip* or *belt feed*. A *tubular sight* replaces the *radial backsight* in guns used by the Tank Corps.

Recoil spring.

2. The following is the nomenclature of appurtenances of the gun :—

“ T ” **Belt.**—Holding 50 cartridges.

Feed strip.—Holding 30, 14 or 9 cartridges.

“ T ” **deflector clamp.**—¶ With two *side plates* ; and two *nuts* and *spring washers*.

“ T ” **cradle.**—With *plunger* and *spring* ; *inner plate* with *spring catch* and *stop screw*† ; and *pan* with *axis pin*.

“ T ” **deflector** (Mk. I§ and Mk. II¶).—With *latch* ; and *axis pin*.

“ T ” **deflector bag** (Mk. I§ and Mk. II¶).—With *frame* ; *band* ; and *spring fastener*.

Shackle.—With *screw* ; *brass chain* with two *S-hooks* ; *latch* ; and *spring*.

Tripod.—With *yoke* and *spring catches* ; *saddle* with *fixing screw* ; *pivot* and *clamping screw* ; *leg bracket* with *clamping screw* ; *adjustable pillar* ; and *three legs*.

§ Special to Mk. I guns.

¶ Special to Mk. I* guns.

“ T ” indicates parts and appurtenances of the gun as used by the Royal Tank Corps.

† The later pattern of cradle is fitted with a Mark II solid catch hinged in a bracket and held in engagement by a spring.

Appendix III.]

328

2. General description.

(PLATES D TO H.)

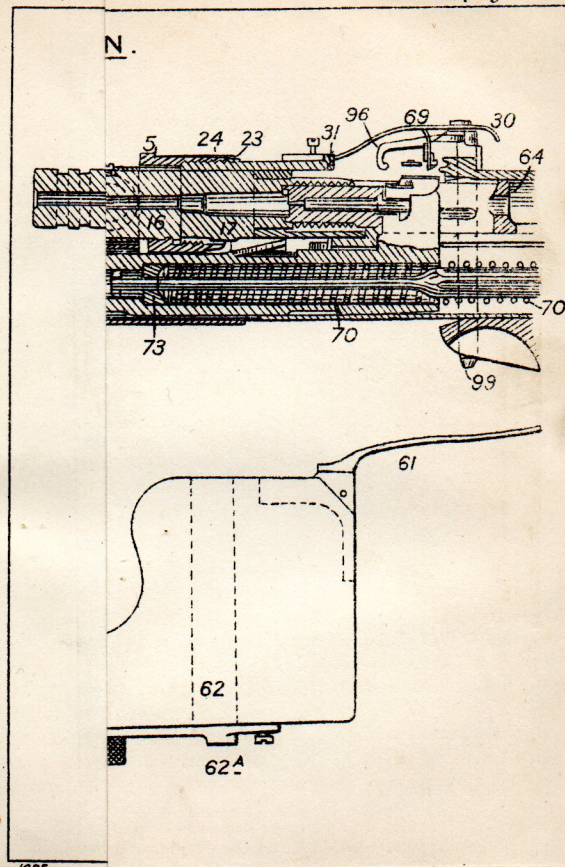
3. Weight of gun with *butt* and *stock*, about 27 lbs.Weight of *feed-strip* (30 rounds), empty, about $4\frac{1}{2}$ ozs.Weight of *feed-strip* with 30 rounds, about 1 lb. 15 ozs.Weight of *belt* empty, $6\frac{3}{4}$ ozs.Weight of *belt* filled, 3 lbs. $3\frac{1}{2}$ ozs.

4. The gun is divided into two portions, stationary and moving. It is worked automatically by two forces :—(1) The pressure of the gas resulting from the explosion of the charge ; (2) the *recoil spring*. The gun is air-cooled.

Stationary portion

5. The stationary portion consists of the *barrel* (1), with *gas cylinder* (2),* *handguard* (3), *body* (4), *locking-nut* (5), *guard* (6), *trigger mechanism* (7), *cockin. handle* (71), and *wooden butt* (8).

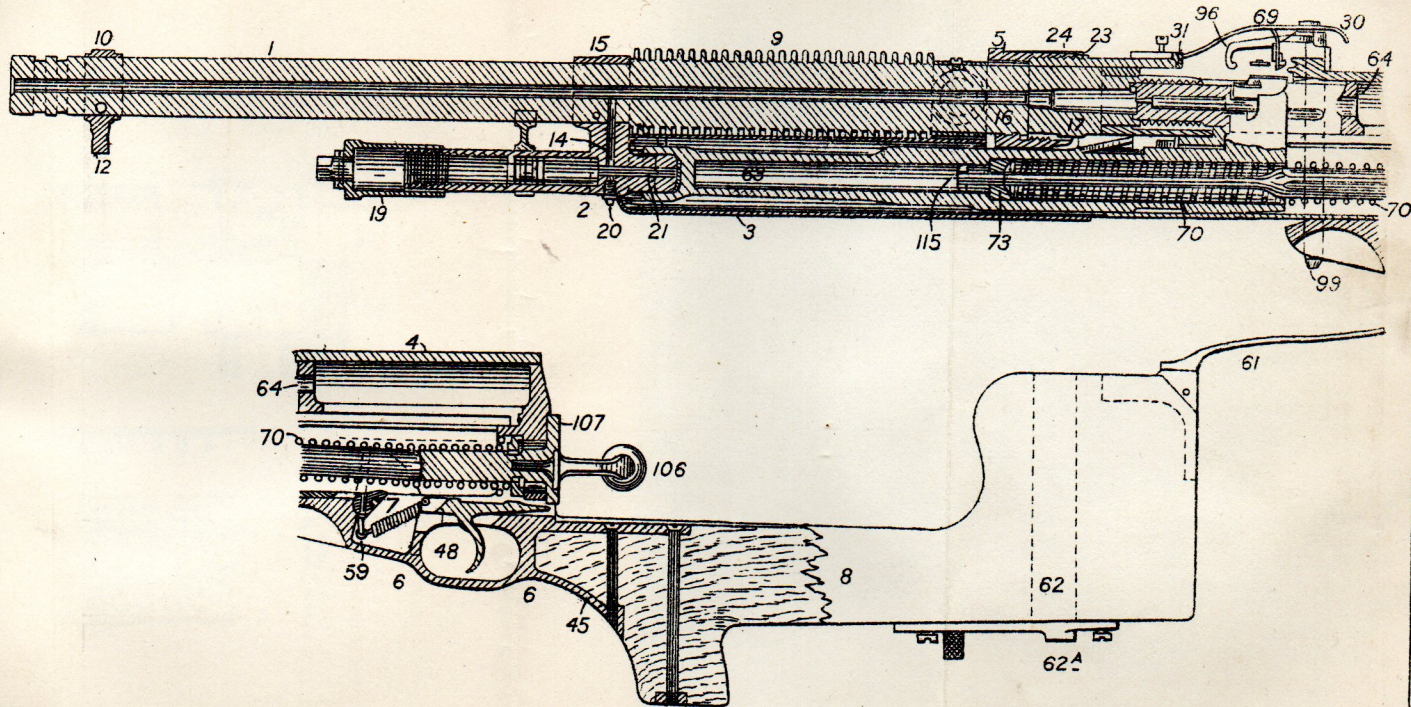
6. The *barrel* (1) is very thick, and at the *breech* end is provided with *radiating rings* (9)†. At the *muzzle* end is a *ring* (10) which carries the *foresight block* (11), and, underneath, a *stud* (12), to which the *barrel rest* was formerly attached. The *foresight* (13) is of barleycorn pattern, and is supplied with a protecting *hood*. About its middle the *gas vent* (14) is drilled in the bottom of the *barrel*, and at this point the *barrel* is encircled by a *ring* (15), which is extended downwards to encircle the *gas cylinder* (2), the *vent* being carried through the *ring* and the extension. In advance of



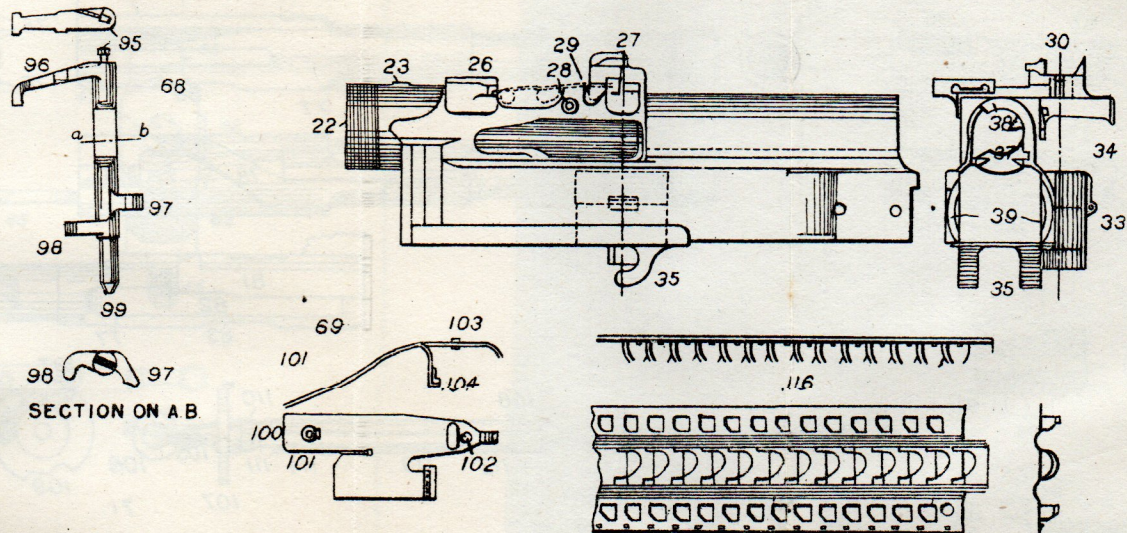
* These numbers refer to those of Plates D to H.

† In certain *barrels* two of these *rings* are omitted.

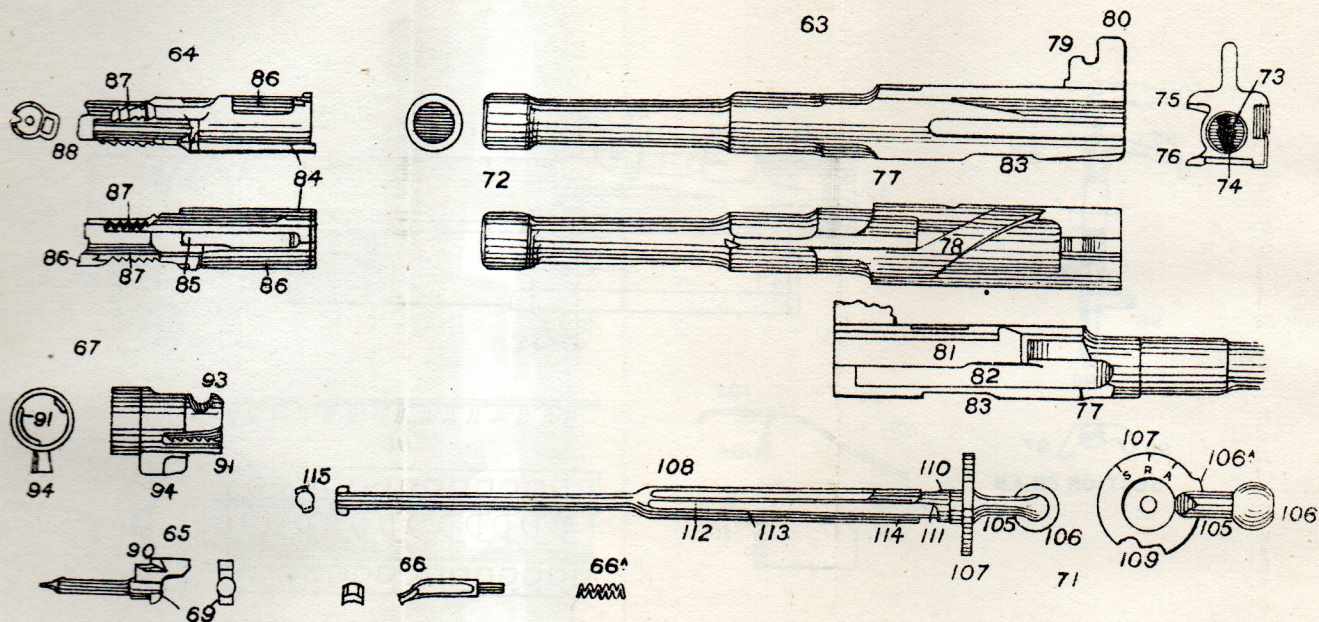
HOTCHKISS MACHINE GUN.

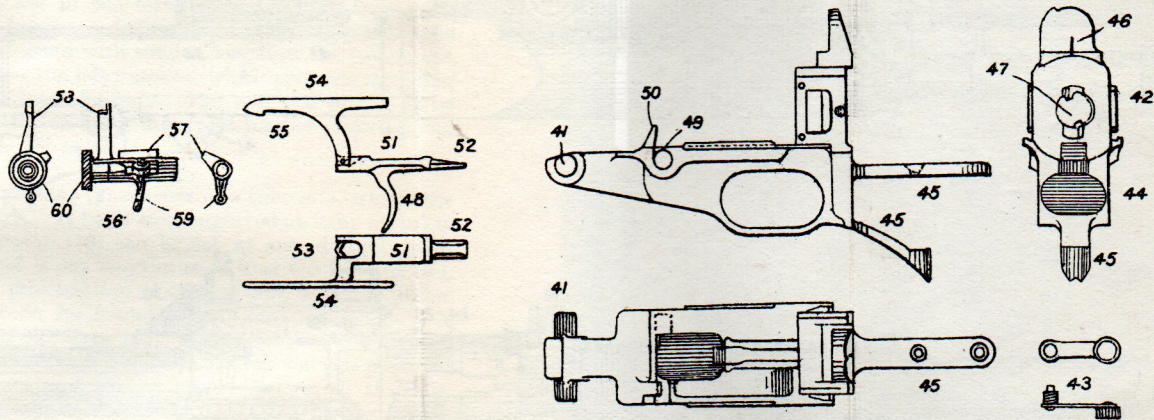


HOTCHKISS MACHINE GUN.

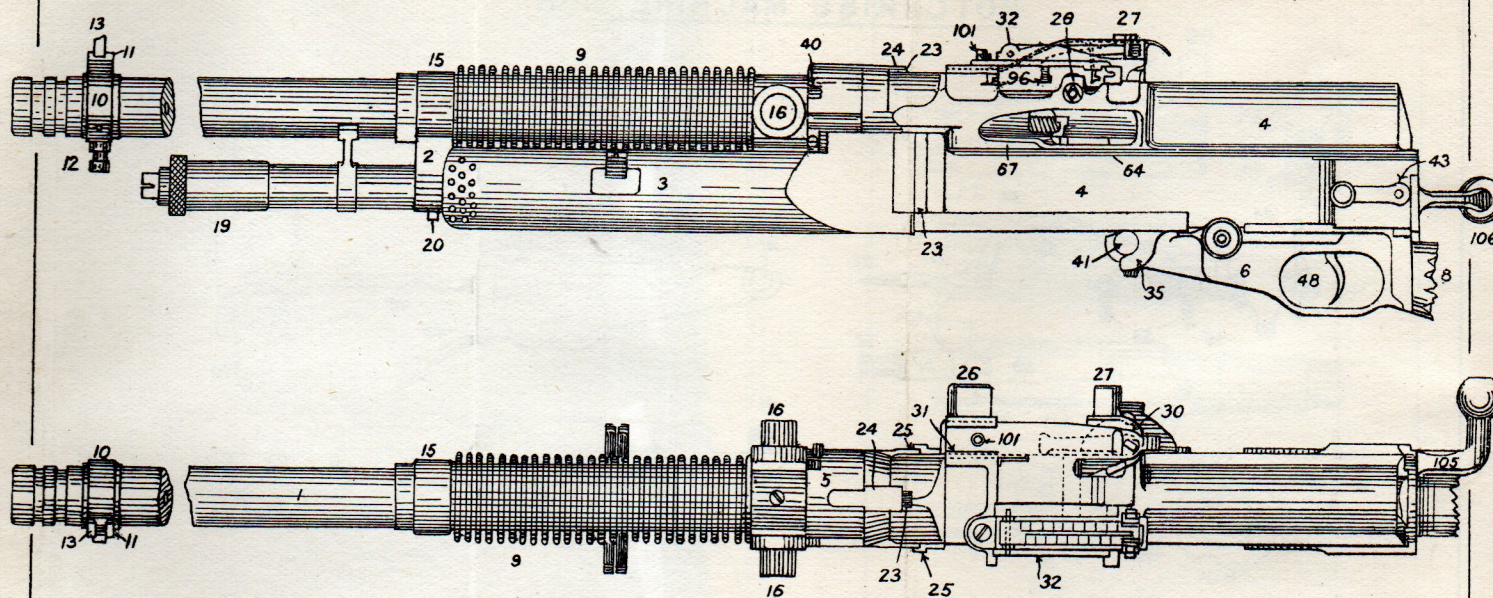


HOTCHKISS MACHINE GUN

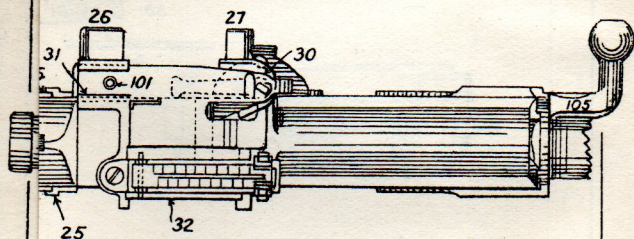
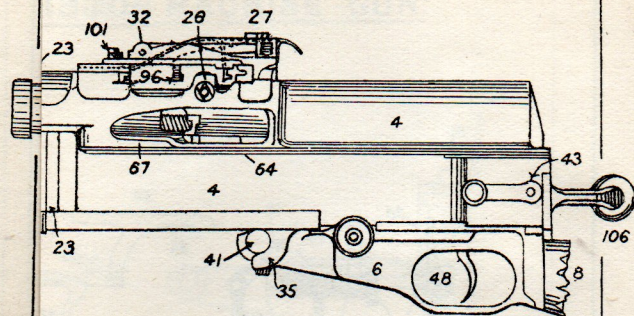


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HOTCHKISS MACHINE GUN.



GUN.



this is a second *support* for the *gas cylinder*. At the *breech* end, in rear of the *radiating rings*, are the *trunnions* (16), to which the *tripod* is attached. In rear of the *trunnions* are the arrangements for attaching the *barrel* to the *body*. These consist of a *key* (17) formed on the under side of the *barrel*, which enters a *slot* in the forward end of the *body*, thus positioning the *barrel*; a double set of *interrupted flanges* (18), which correspond with similar *flanges* in the *locking-nut*, and a *stud*, under the left *trunnion*, which prevents the *barrel* entering too far into the *body*. The rear end of the *barrel* has *recesses* for the *extractor claw*, and for the *projections* on the face of the *breech block*.

7. The *gas cylinder* (2) consists of a tube into which the *gas vent* (14) leads. It has a *scale* engraved on it by means of which the *regulator* (19) can be set at any desired point. A shallow *channel* is cut lengthwise in it at the forward end. Immediately in prolongation of the *gas vent*, a hole is drilled through the *cylinder* for manufacturing purposes. This hole is closed by an *orifice screw* (20). The *regulator*, which closes the front end of the *cylinder*, consists of a *cap* which is provided with a square *nut* and with a milled *surface*, so that the *regulator* can be adjusted either by hand or with the *wrench* provided. The *cap* is prolonged to fit over the *gas cylinder* and has two longitudinal *saw cuts*, the piece between the *cuts* being sprung inwards and provided with a *nib* which engages in the *channel* in the *gas cylinder* and holds the *regulator* in position. Through the *cap* passes a *stem* which is threaded at the end near the *cap* to screw into the *gas cylinder*, which is threaded internally at its front end. The rear end of the *stem* is provided with three *rings* which fit the *cylinder* closely. Thus, by screwing the *regulator* in or out,

the size of the chamber in the *cylinder* is diminished or increased, and the pressure raised or lowered, as may be required for the working of the gun. In the rear end of the *gas cylinder* is a *passage* (21) through which the gases pass on to the *head* of the *piston*.

8. The *handguard* (3) is a casing of sheet steel, which at its rear end fits into *slots* on the *body*, and is kept in position by the support of the *gas cylinder* (2). It encloses the rear portion of the *gas cylinder* and the forward part of the *piston rod*. At its front end it has a number of holes which allow the gases, after actuating the *piston*, to exhaust into the air.

9. The *body* (4) is of steel, rectangular in shape in its lower portion and cylindrical in its upper. The front end of the cylindrical portion is threaded externally (22) to take the *locking-nut* (5), and a *slot* is cut underneath for the *key* (17) on the *barrel*. Further to the rear, this *slot* is enlarged to allow of the movement of the *boss* on the *fermeture nut*. Externally, in rear of the *thread*, is a small *lug* (23) with *serrations* which engage with the *serrations* on the *spring* (24) of the *locking-nut*. On the rectangular part are the two *slots* (25) in which the rear end of the *handguard* (3) engages. On the top of the *body* are the *feed channel* and the *support* for the *feed mechanism*. The former consists of *guides*, *front* (26), and *rear* (27), through the lower portion of which the cartridges travel, while *grooves* are cut in the upper portion to guide the *strip*. The *body* of the Mk. I* gun has deeper *slots* in the *feed guides* than the Mk. I gun, to allow of the passage of a *belt* which, owing to its *hinges*, is thicker than the *feed strip*. This *body* is inscribed "*Belt or strip feed*" on the front end. The Mk. I gun cannot be used with a *belt*. The Mk. I* is suitable for both *belts* and *strips*. Between the

guides a wedge-shaped *tongue* projects from the left side of the *body*, its function being to force each cartridge slightly out of the *clips*; on the *base* of this *tongue* is drilled the *recess* for the *cartridge stop* (28) and *spring*. The stop consists of a small *plunger*, surrounded by a spiral *spring*, in a cylindrical casing which screws into the base of the wedge-shaped *tongue*. Immediately in rear of the base of the *tongue* is a *recess* (29), which allows the rear *clips* of the *strip* to pass. On the top of the front *guide* is the undercut *recess* (31), which takes the *tongue* of the *feed piece spring*.

On top of the rear *guide* is the *support* (30) for the *feed piece*, with a *recess* which holds the *lever* when in its lowest position; *stops* which limit its travel when in its highest position, and a circular *bearing* for the *stem*, cut away at the rear to allow of the removal of the *stem*. Between the two *guides*, on the left, is fixed the *backsight bed* (32); in future two spring *washers* of the pattern used with *tubular sights* will be assembled under the *head* of the *fixing screw* of the *backsight* to prevent the *screw* from jarring loose during firing. The *backsight* is of radial form, with a V. It is adjusted by means of a *slide* with *spring catches*.

For guns used by the Tank Corps, *tubular sights* are provided instead of *radial backsights*. They are assembled to the gun in the position normally occupied by the latter, and in the same manner, the front end being secured by the *backsight bed fixing screw*, with two spring *washers* under the *head* of the *screw*. The *washers* are cupped discs, and are assembled with their concave faces in opposition.

Several patterns are in use, viz., No. 1, Mk. I, which is of steel and consists of a *base plate*, on the upper face of and near rear end of which is a *tube* mounted on two *studs* which

are riveted in the base *plate*. The *tube* is soldered to the *studs* and it is also secured by a *screw* assembled from the underside of the base *plate* into a *boss* formed on the *tube*, the *screw* being soldered in. The No. 2 *Mk. I*, is also of steel, but an upper inclined *rib* on the base *plate* (dovetailed at its rear end) retains the *tube*, which is correspondingly dovetailed and secured by a *dowel pin*. The *Mk. II sight* is cast in gun-metal, the *tube* being integral with the base *plate*.

The several patterns may be used alternatively, but no more No. 1, *Mk. I*, *sights* will be manufactured.

The *tube* which forms the *sights* and gives the elevation for 600 yards, is bevelled at its front end to allow the *feed piece* to be removed. The *foresight* can be used in conjunction with it, but if the *foresight* is shot away, the *tube* alone enables a sufficiently accurate sight to be taken.

Underneath the rear *guide* on the right side is the seating for the *ejector*, which is a small *plunger* which, with its *spring*, is retained in the *body* by a *screw cap*, and projects into its interior. Below this is the *casing* (33) which encloses the two *arms* of the *feed piece*, a hole in the lower part of which forms a *bearing* for the *stem* and allows its lower portion to pass through the *casing*. The *casing* is closed by a hinged *cover* which has a *flat spring* to keep it closed and a *stud* (34) to facilitate opening. Underneath are two *hooks* (35) which take the *trunnions* at the front end of the *guard*.

The *body* is cut away at the top between the two *feed guides*; on the left side, at the same point, (36) to allow for the ejection of the empty case; at the right side to allow of the movement of the two *arms* of the *feed piece*; and underneath and at the rear end for the attachment of the *guard*. Internally, the *body* has, between the two *feed guides*, a *shoulder* against

which the rear end of the *fermeture nuts* seats, and which prevent any backward movement of the *nut*. Immediately in rear of this are the *grooves* and *plates* (37) which guide and support the *breech block*, the *plates* being reduced in size in rear of the *ejection opening*. Underneath the rear *feed guide* the top of the *body* has an internal *cam groove* which controls the rotation of the *firing pin*. The right side of this *groove* is continued to the rear end of the *breech casing* in the shape of a *ridge* (38) which keeps the upper *boss* on the *firing pin* (65) in the *recess* (86) in the *breech block* (64) during that part of its travel. At its rear end are the *recesses* into which the *projections* on the side of the *guard* engage, and on the left side is drilled to take the *screw* (43) which locks the rear end of the *guard*. The rear face has portions of a *circular groove* (39) which forms a path for the *projection* on the *disc* (107) of the *cocking handle* (71).

10. The *locking-nut* (5) screws on to the front end of the *body*. It has at its front end a *stud* which acts as a stop by coming in contact with the *handguard* (3), and at its rear end a *spring arm* (24), the under part of which is serrated to engage the *serrations* (23) on the top of the *body*. These two parts are in such a position that when the *serrations* are engaged the *barrel* is securely locked to the *body*, while, when the *stud* is in contact with the *handguard* (3), the *nut* is in such a position that the *barrel* can be withdrawn.

Internally, the *nut* has *interrupted flanges* which engage with the *flanges* (18) on the rear end of the *barrel*. In its front end are *recesses* (40) which enable a *wrench* to be used for unlocking the *nut* removing the *barrel*.

11. The *guard* (6) contains the *trigger mechanism* (7) and closes the rear end and under side of the *body*, to which it is

attached by means of **trunnions** (41) at the front end and **side lugs** (42) at the rear end. It is kept in position by a **locking screw** (43). It has a **socket** (44) and **tangs** (45) for the attachment of the *butt stock*. On the upper part of its rear face a **line** (46) is engraved which, in conjunction with the **lines** engraved on the *disc* (107), enable the *cocking handle* (71) to be set to safety or to give various natures of fire. It is bored to allow of the entry of the *cocking handle*, and in the **recess** (47) thus formed is a **collar**, kept in position by two fixing *pins*, in such a way that, between it and the rear of the *guard* is a space in which the *tenons* (110) on the *cocking handle* work. The **collar** has two **nibs** which project inwards and engage the *grooves* (112), (113), on the *cocking handle*, while its rear face has several **recesses** with which the *nibs* (111) on the *tenons* of the *cocking handle* engage and retain the *handle* in one of its several positions. The forward portion of the **recess** serves to contain the rear end of the *recoil spring* (70), which therefore bears against the **collar** and keeps it forced backwards. The *recoil spring*, however, allows the **collar** to be pushed forward as the *nibs* (111) on the *tenons* of the *cocking handle* pass over the *ridge* between two adjacent **recesses** on the rear face of the *nib*, and makes the **collar** spring backwards as the **recess** is reached. The *cocking handle* is thus prevented from rotating unless force is applied to the *lever*. Underneath the **recess** is a **rectangular hole**, which allows the *tail* (52) of the *trigger bar* to pass through the *guard*. The under part of the *guard* is slotted to allow the *trigger* (48) to pass it into the *finger opening*. Above this *slot* is a horizontal **channel** in which the *trigger bar* works, with a projecting **stop** to limit the forward travel of the *bar*. In front of that is the **well** in which the *sear* is housed, *bearings* (49) for the *sear axis* being provided at the front

end; the left *bearing* is cut away to allow of the removal of the *sear*. In front of the left *bearing* is the **arm** (50) which acts as a *stop* for the *sear arm*.

12. At right-angles to the *finger-piece* of the *trigger* (48) is the **trigger bar** (51), which has a wedge-shaped **tail** (52). At the front end of the *bar* is a **recess** (53), across which a *pin* is fixed to which the **spiral spring** is attached. At the left side of the front end of the *bar* is a **T-shaped arm** (54) which is curved outwards to clear the *piston rod*. The front extremity of the cross *bar* of this *arm* is furnished with a **hook** (55), which engages with the top of the *arm* of the *sear* and communicates the movement of the *trigger* to the latter.

The *sear* consists of a rotatable **axis pin** (56) carrying a **block** (57) which engages with a **recess** (83) in the bottom of the *piston rod*, holding the latter back and thus performing the function of the *nose* of the *sear* in the *rifle*; an **upright arm** (58) near the left end of the *axis*, which is engaged by the **hook** of the *T-shaped arm*; a **downwardly-projecting arm** (59), to which the other end of the *spiral spring* is attached; and, at the left extremity of the *axis*, a **milled head** (60) which, in case of a failure of the *mechanism*, or for the purpose of stripping and assembling, allows the *sear* to be rotated and the *piston rod* to be released. Between the *block* and the *arm* is a **flat** on the *axis* which allows the *sear* to be removed from the *guard*, the *block* being cut away at this point for the same purpose.

13. The **cocking handle** (71) consists of the **lever** (105) and **knob** (106), **disc** (107), and **stem** (108). The *lever* springs backwards from the *disc* and is then bent at right-angles. The *disc* has, on its periphery, close to the *lever*, a **projection** (108A) which prevents the *handle* being turned

over too far to the left; **three lines**, marked respectively "A," "R" and "S" *; and **recesses** (109) diametrically opposite to the first two of these *lines*. The setting of the *disc* (107) so that one of these *lines* corresponds with the *line* (46) engraved on the rear face of the *guard*, results in the *recess* below it controlling the backward movement of the *tail* (52) of the *trigger bar*. On its inner surface a **groove** is cut leaving a **ridge** which works in the *grooves* (39) on the rear face of the *body* and keeps the travel circular. On the *stem* near the *disc* are two **tenons** (110) which work in the space between the rear face of the *guard* and the *collar* which it contains.

On the front of these *tenons* are **nibs** (111) which engage with the *recesses* in the rear face of the *collar* and prevent the *cocking handle* from rotating from the position in which it is set. In front of the *tenons* six longitudinal **grooves** are cut in the *stem*. Of these, two are for lightness. The others are arranged in two pairs, the right-hand one of each pair (112) being open at the rear end and closed at the front, the left-hand one (113) closed at the rear end and open at the front. The wall between the two *grooves* at the rear end is cut away (114) to allow of communication between them. In these *grooves* lie the inwardly-projecting *nibs* of the *collar* in the *guard*. In front of this part the *stem* is reduced in diameter and is cylindrical. At the extreme end are two **lugs** (115) which enter the *recesses* (74) in the *collar* in the *piston rod*, and, when the *cocking handle* is rotated after entry, provide a means by which the *piston rod* can be drawn back.

* A—"Automatique," or continuous fire.

R—"Repetition," or single-shot fire.

S—"Sûreté," or safety.

14. The wooden **butt stock** (8) is provided with a hinged steel **strap** (61), and is drilled (62) and provided with a brass *tube* to take an *elevating device*. The latter consists of two externally-threaded *rods* joined by an internally-threaded *collar* the upper *rod* passing into the hole in the *butt* and the lower being fitted with a *foot* which rests on the ground. Rotation of the *collar* then raises or lowers the *butt* as may be required. The *elevating screw* is retained in the *butt* by means of a sliding **catch** with a *spring* (62A). In the absence of the *elevating device* the hole in the *butt* is utilised to accommodate an **oil bottle**. This is of steel, with a *flange* at its lower end, while the mouth is threaded to take a *screw collar* which secures the *bottle* in the *butt*. In the bottom of the *bottle* is a screw-driver *slot* by means of which it can be prevented from rotating while the *collar* is being screwed down or removed. The *oil bottle* is closed by a *milled head*, to which a *brush* is attached. A leather *pocket* and **strap** are provided on the right of the *butt* to carry the *dismounting wrench*.

As an alternative, for use in confined spaces, a **pistol grip** is provided. It is of gunmetal and fits into the *socket* at the rear end of the *guard*, being secured to the *tang*. On either side are vulcanite **side pieces** secured by a *screw*. A hole is drilled in the rear face to take the *stud* on the *shoulder piece*, and another hole is drilled crosswise to take the fixing *pin* of the *shoulder piece* (Mark I* only).

The **shoulder piece**, which is an adjunct to the *pistol grip* for use in the open, has at its front end a **fork**, between the *arms* of which is the *stud* which helps to keep it in position when attached to the *pistol grip*. A T-shaped **fixing pin**, threaded at its outer end and attached to the *shoulder piece* by a leather *thong*, is provided for securing the *shoulder piece*

to the *pistol grip*. The *fixing pin* is inserted from the left side, so that its *head* is not in the way of the firer's right hand. The *fork* is attached to a *steel tube*, at the rear end of which is an upstanding *steel plate*.

The *butt-stock* and *pistol grip* are both suitable for use with either mark of gun.

Moving portion.

15. The *moving portion* consists of the *piston rod* (63), *breech block* (64), *firing pin* (65), and *extractor* (66), *fermeture nut* (67), *feed piece* (68) and *spring* (60), and *recoil spring* (70).

16. The *piston rod* (63) is a heavy steel rod. Its front end forms a *cup* (72) which surrounds the rear end of the *gas cylinder* (2) when the *rod* is in its forward position. It is bored internally from the rear, the hole being of sufficient diameter to take the front part of the *recoil spring*. About the centre of its length a *collar* (73) is screwed into the hole in the rod. This collar has two *recesses* (74) cut in it to allow the *lugs* (115) at the front end of the *stem* of the *cocking handle* to pass it, while its rear face acts as a seating for the front end of the *recoil spring*.

Externally, the *piston rod* has on its upper surface *guides* (75), which work along the bottom of the *plates* (37) in the *body*, which support the *breech block* (64), while its lower surface is flat and is extended sideways (76), the whole travelling on the bottom of the *body* and on the upper portion of the *guard*. The *shoulder* (77) formed by the front of the right *extension* is utilised to keep the *piston rod* in its rearmost position, and the *breech open*, when the last cartridge of a *strip* has been fired. The holding back of the *piston rod* is accomplished by the *shoulder* just mentioned being prevented from going forward by its engagement with the *lower*

arm (98) of the *feed piece* (68) when the latter is in its lowest position. The left *extension* is cut away at the rear end to clear the *T-shaped arm* (54) of the *trigger bar* (51).

On the top of the *piston rod* is a *cam groove* (78) which rotates the *fermeture nut* (67) the front face of the *cam* as it moves back unlocking the *breech*, and the rear face of the *cam* as it moves forward locking it. Behind the *cam groove* are *blocks* (79), (80) which enter the under part of the *breech block* (64) and between which the lower *boss* (89) on the *firing pin* (65) then lies. On the right side of the *piston rod* are two *cam surfaces* (81), (82) one above the other, the slopes being opposed. These surfaces act on the two *arms* of the *feed piece*. Underneath the *rod* towards the rear end is a *recess* (83) into which the *block* (57) of the *sear* rises and holds back the *rod*.

17. The *breech block* (64) is cylindrical, a flat surface with *flanges* (84) being formed underneath its rear half to work in the *guide grooves* (37) and support it. In the left *flange* is a *shoulder* which allows the *breech block* to be pushed forward by means of the *dismounting wrench* when, owing to a failure in the action of the *firing pin* in the *recess* of the *breech block*, the latter is jammed. A *slot* (85) is cut through the *breech block*, towards the rear end, the slot being enlarged (86) on the top of the *breech block* to allow the upper *boss* (90) of the *firing pin* (65) to be turned over to the left. At the rear end of the *slot* is an inclined *plane*, which enable the *firing pin* to be removed. The *blocks* (79), (80), on the *piston rod* enter through the *slot* in the *breech block*. The rear face has a circular hole in it, and, forward of the *slot*, the *breech block* is drilled cylindrically. Externally it has towards its forward end the three parts of the *interrupted screw* (87) which

engage with similar parts in the *fermeture nut* (67). On the left side is the **recess** for the *extractor* (66) and its *spring* (66A) and on the right the **groove** which allows the *breech block* to pass the *ejector*. On the front face is the *firing-pin* hole, while the *bolt head* carries the **hood** (88) which holds the *extractor* in place and two **projections** which enter *recesses* in the rear face of the *barrel*.

18. The **firing pin** (65) is cylindrical and has underneath it a **boss** (89) which lies between the two *blocks* on the *piston rod* when the gun is assembled, and, above, another **boss** (90) with sloping faces which work in the *cam grooves* on the top of the interior of the *body*. The lower *boss* is sloped at the rear end to permit of the removal of the *firing pin* from the *breech block*.

19. The **extractor** (66) has a *hook* which engages the rim of the cartridge and a *stem* surrounded by a **spiral spring** (66A) which forces the *hook* inwards when it has passed over the rim.

20. The **fermeture nut** (67) is a steel sleeve which carries internally an *interrupted screw thread* (91) corresponding with that on the *breech block*. Its forward portion (92) cylindrical and fits over the rear portion of the *barrel*, which therefore prevents any forward movement of the *nut*, while its backward movement is made impossible by the *shoulder* in the *body*. The *nut* has two longitudinal *slots* cut in it, of which the upper, when in the unlocked position, allows the cartridge to pass from the *strip* to the *chamber*, and the lower corresponds with the *ejection opening* in the *body*. The latter *slot* is recessed internally to allow the *hood* of the *extractor* to pass. The smaller of the two portions between the *slots* has a *depression* (93) in it which, in the locked position, allows the front *clips*

of the *strip* to pass. Underneath the *nut* is a *boss* (94) with two sloping faces. The *boss* is operated by the *cam groove* (78) in the upper surface of the *piston rod* (63), causing the *nut* to rotate.

21. The **feed piece** consists of a *stem* (68) which rotates in *bearing* in the rear *feed guide* (27) and in the *feed piece casing* (33). The *stem* has at its upper end a small undercut *stud* (95) which engages with the *opening* (102), in the *spring* (69). Below this is the *lever* (96), whose *head* is shaped as to engage the central openings in the *strip* while it is sloped so as to ride over the ridges between the opening when the *lever* is moved over to the right. Below this the *stem* has two *flats* on it to allow of its removal from its upper *bearing*. Towards the bottom are the two **arms** (97), (98) which are actuated by the *cams* on the right side of the *piston rod* and produce an oscillating movement of the *stem* and *lever*.

The **spring** (69) is shaped from a flat steel plate. At its front end a **tongue** (100) is formed which fits into the undercut *recess* (31) on the front *feed guide*, with a **stud** (101) which assists removal. At its rear end on the right is a *hole* (102) which fits over the undercut *stud* (95) on the *stem*, in front of which is a **stud** (103) against which the front of the undercut *stud* bears. In the rear of the *hole* the *spring* is prolonged and curved downwards to form a means of removal. On the left the *spring* is curved downwards and provided with a **tooth** (104) which engages with the rear *openings* in the *strip* and prevents any movement of the *strip* to the right while the *lever* is being moved in that direction. The *tooth* has a sloping face so as to slide over the *ridges* between the *openings* when the *strip* is moved to the left. Underneath the *spring* and just in front of the *hole* (102) is a smaller *stud* which is so

shaped that, when the *feed piece* is raised to its highest position, it forces the *lever* over to the left.

The **No. 2 feed piece spring** has a deeper *tooth* than the *No. 1 spring* to compensate for the greater depth of the *slots* in the Mark 1* *body*. It is marked "No. 2." The *No. 1 spring* bears no mark. The *No. 2 spring* can be used in either mark of *body*, whether for *belt* or *strip* feed. The *No. 1 spring* can only be used in the Mark I *body* and therefore not with a *belt*.

22. The **recoil spring** (70) is a spiral *spring* which lies in the interior of the *piston rod* (63). Its front end bears against the *collar* (73) in the *piston rod* and its rear end against the *recess* (47) in the *guard*.

23. The gun is fed by means of a flat steel *strip* (116) of the ordinary Hotchkiss type. Three rows of *clips* are formed on it, by stamping out and pressing up, to hold the cartridges. On the rear edge of the *strip* a number of small raised *nibs* equal to the number of cartridges are provided to position the cartridge. In later patterns a continuous *ridge* is substituted for these. On the right-hand end of the *strip* is an **extension** which enables the *feed piece* to eject the *strip* when the last cartridge has been fired.

An alternative method of feed is by means of a flexible metallic *belt*. The *belt* consists of a number of *units*, provided with *clips* to hold the cartridges identical with those on the *strip*, joined by *hinges*. The early pattern is constructed of seventeen *units*, the first sixteen *units* holding three cartridges each, and the last *unit* holding two cartridges only. The later pattern has sixteen *units*, the first *unit* holding six cartridges, the next fourteen *units* holding three cartridges and the last *unit* two cartridges. The extra length in the first *unit* increases

the ease of insertion into the *feed guides*. In both types the last *unit* has the front and rear *clips* either set back, removed or not formed in order to prevent this *clip* retaining a cartridge. The centre *clip* is formed as usual to enable the *feed piece* to eject the *belt* when the last cartridge is fired.

The *belt* can be used only when the *cradle* is attached to the gun to contain the loaded portion.

24. The 30-rounds *strips* are carried in a leather *carrier* made to take 10 *strips*. It is lined with felt internally to prevent noise when moving, the side being reinforced with tin and provided with leather *handles* for carrying purposes. A leather *draw-strap* is affixed to the inside at the bottom to assist in withdrawing the ammunition *strips*. Also the supply of spare *strips* are carried in a wooden *box*, strengthened by steel *strips* at the angles, with internal partitions dividing it into five compartments, each of which holds two *strips*. The top of the *box* is a hinged lid with a *spring catch* for the Mk. I. box and a strap fastening for the Mk. II. box. A leather *handle* is provided for carrying the *box*.

The 9-round *strips* are carried in *bandoliers*.

The ammunition *box* for use in tanks is made of tin, fits securely into the racks provided in a tank, and is divided into six compartments each to hold a *belt*.

The ammunition *box* is provided with a leather *handle* at one end and a quick release *catch* at the other end.

The *boxes* should be placed into the racks with the *handles* outwards to facilitate withdrawal.

The *belts*, which hold 50 rounds, may be filled either by *belt-filling machine* or by hand, but care must be taken to leave the last space of the *belt* empty, in order that the gun may eject the *belt* when empty.

Each *belt* must be rolled up closely, with the cartridges on the outside, starting with the 2-round unit and finishing with the 6-round unit.

A *belt* is then placed in each compartment of the *box* with the 6-round unit towards the *handles*, the bullets pointing downwards.

The *belts* fit the compartments closely, so as to prevent them shaking loose.

When a *belt* is required for loading the gun, the *box* is withdrawn from the rack and placed on the floor of the tank directly under the gun, the *handle* of the *box* being to the left of the firer with the lid removed.

A *belt* is then extracted by inserting the thumb of the right hand into the centre of the rolled *belt*, and the four fingers of the right hand against the 6-round unit, when the *belt* may be lifted out of its compartment and will be in position in the hand ready to be inserted directly into the *feed guides*, with the rolled portion laid in the *cradle*.

25. The *clamp* is provided to enable the *cradle* and *deflector* to be attached to the gun. It consists of two *plates*. The left *plate* has on its outer face the *bracket* for the *axis pin* of the *deflector* and on its inner face two *bolts*, threaded at their outer end. The right *plate* has two holes for the *bolts* and an *arm* to take the socket of the *cradle*, with a *recess* into which the *spring plunger* of the *cradle* enters. Two *nuts* and *spring washers* retain the right *plate* in position and connect the *clamp* to the gun. Both *plates* have on their inner faces *ledges* which rest on corresponding *ledges* on the *body*, and, when in position on the gun, their front ends must butt against the *projections* on the *body* which retain the *handguard*.

26. The *cradle* has a *socket* which passes over the *arm* of the *clamp*, with a *spring plunger* which keeps it in position. To the *socket* is attached the *inner plate* which is slotted to allow the *belt* to pass into the *feed guides*. It has *flanges* which support the edges of the *pan*, while on its rear face is a *spring catch** to hold the *pan* in position and a stop *screw* to prevent the *spring* being overstrained. The *pan* is shaped to contain the coiled *belt* and is hinged at the bottom to the *inner plate*. On its rear face is a square hole into which the *tooth* of the *spring catch* enters.

27. The *deflector*, Mark II, is arranged to cover the *ejection opening* in the gun. Its outer face is curved so as to deflect the empty cases downwards, and in its ends are *slots* for the attachment of the *bag*. It is rivetted to an *arm* which is hinged between *brackets* on the left side *plate* of the *clamp*. In the *brackets* are *slots* for the engagement of the *latch*. The latter consists of the *handle* and the *head*. The *head* is cut away at two points so that when the *handle* is vertical it clears the *brackets* and the *deflector* can be turned down away from the *ejection opening* in order to clear a stoppage, replace a broken *extractor* or *spring*, or oil the *mechanism*. When, however, the *handle* is pulled over so as to lie at an angle of 45° towards the firer, the head of the *latch* engages with the *slots* in the *brackets* and holds the *deflector* against the *ejection opening*. The upper part of the *head* forms a *spring arm* which retains the *latch* in the open or closed position as may be required.

28. The *deflector bag* is of canvas and will contain 300 empty cases. The mouth of the *bag* is fastened by

* The later pattern of *cradle* is fitted with a Mark II solid catch hinged in a bracket and held in engagement by a spring.

eyelets to an internal *frame* to the ends of which are riveted *lugs* to enter the *slots* in the ends of the *deflector*, and attach the *bag* to the *deflector*. Lower down the bag a steel *band* is fixed inside it by means of similar eyelets. This *band* ensures that the upper part of the *bag* is kept open, thus securing a free passage for the cases. The bottom of the *bag* is formed by a *flap*, held in position by a *spring fastener*. The *bag* can thus at any time be emptied without removing it from the *deflector*.

The *clamp*, *deflector* and *deflector bag* can be used with either mark of gun.

29. The *tripod* consists of an aluminium *yoke*, grooved on either side, to take the barrel *trunnions* and fitted with *spring catches* to retain them. The lower end of the *yoke* is pivoted in a *saddle*, being fixed by a *screw* with a *vice pin*. The under side of the *saddle* is jointed to the upper end of a *pivot* giving horizontal traverse and is fixed by a clamping *screw*. The lower end of the *pivot* enters the vertical *pillar* which passes through the leg *bracket*. The *pillar* can be fixed at any desired height by means of a clamping *screw*. The *legs* are hinged in the leg *bracket*, their lower ends being pointed and provided with *feet* to seat on the ground. The *legs* are pressed outwards automatically by means of a movable *collar* actuated by a *spring* secured above the *legs* by a *nut*.

When not in use the lower part of the *tripod* hinges forward to lie underneath the gun, the *legs* being secured by a *shackle*. The latter consists of a *band* which passes round the *gas cylinder* between the *ring* and the *cylinder support* and is secured by means of a *screw*. A brass *chain* is attached to it,

which passes round the *legs* and holds them, the free end being retained by a *spring latch* on the *band*.

30. **Protector, foresight, Mark I.**—A fixed type of *foresight protector* has been designed for future manufacture, and assembly to existing guns during the repair of the latter.

It consists of a *block*, a *plate* and two fixing screws.

The *block* is gapped out at the front to fit over the sides of the foresight *stool*; it has vertically protecting *wings* or ears, one on each side, and an extension at the rear, which is slotted to take the Mark II *luminous sight*. A hole is drilled through the side of each wing to take the No. 3 M.G. *punch* for the lateral adjustment of the *foresight* in the dovetail.

The *plate* is bored to engage over the *muzzle* end of the *barrel*, up to the front face of the foresight *stool* against which it abuts, and is shaped to blend with the formation of the *block*.

The *block* and *plate* are connected together when in position on the foresight *stool* by two fixing screws, the *plate* being drilled and recessed for the *head end*, and the *block* drilled and tapped for the threaded *portion* of the *screws*.

The *protector* as one whole is thereby securely clamped to the foresight *stool*.

When the issue of the *protector* is made for local assembly to *barrels*, or when supplied on guns and spare *barrels*, the foresight *cover* will not be required and will be returned to store.

3. Description of accessories.

1. **Tool for re-sizing strips and belts.**—The *re-sizing tool* is provided to enable the curvature of the centre row of *clips* on the *strip* or *belt* to be restored when, through use or damage, the *clips* do not properly retain the cartridges.

It is in the nature of a *machine*, and consists of a malleable cast-iron *body*, in which a studded *feed wheel* is mounted on a *spindle*; above the *wheel* is a hardened steel *roller* mounted on an *axis pin* in an adjustable *bracket* fixed to the top of the *body*. A "T" *slot* is cut in the underside of the *body* to take a *clamp* with which the *tool* is secured to any convenient *box* or *bench*.

The *feed wheel spindle* projects outside the *body* and takes the *crank handle*. (The *clamp* and *crank handle* are identical with those in the *filling machine*.)

To use the *tool*, insert the *strip* or *belt* into it on the left with the *clips* uppermost, and end *link* first, *i.e.*, in the reverse direction of that in which it is inserted in the gun, the first central aperture engaging a *stud* on the *feed wheel*. Then turn the *crank handle* in a clockwise direction and wind through.

The *roller bracket* can be adjusted up or down on its inclined *seating* to give the desired result, the latter to be determined in comparison with the grip of the cartridges in a new and satisfactory *strip* or *belt*, which should be selected as a standard.

The working parts of the *tool* should be lubricated periodically.

It may be found necessary occasionally, and more especially in the case of the *belt*, to adjust the front and rear *clips* to remedy distortion; this must be carried out by hand, care being taken to see that the cartridge is gripped satisfactorily after adjustment.

Weight of *tool* complete, about ... 5 lbs. 14 oz.

2. Sights, luminous, fore and back, Marks I and II.—

The Mark I *foresight* consists of a steel *bracket* which is arranged to assemble on to the *foresight stool* on the *barrel* of the gun whilst the ordinary *foresight* remains in position in the *stool*.

It is secured when in position on the *stool* by means of a *clamp screw* on the left having a knurled *head* on the outside and a cupped friction *washer* on the inside. Between the front *plate* (which is grooved vertically to take the *glass tube* containing radio-active material) and the main portion of the *bracket* is introduced a strip of non-conducting material provided to check the conduction of heat from the *barrel* to the *glass tube*. The latter is bedded in plastic material and is secured in position by a brass *plate* screwed on.

The *backsight* consists of a steel *plate* recessed at the front face to engage on to the *head* of the *leaf* of the ordinary *backsight* of the gun, and fitted with a *spring* having two projecting *arms*, which respectively engage over each side of the *head* of the *leaf* to retain the *sight* in position. A central rectangular *opening* is cut in the upper edge of the *plate* whilst the rear face is grooved laterally to take two *glass tubes* containing radio-active material, one on each side of the opening. The *tubes* are bedded and secured in position by a brass *plate* as in the case of the *foresight*.

The Mark II *foresight* is designed for use with the Mark I *foresight protector*, being arranged for assembly into the *slot* in the *block* of the *protector*. It consists generally of the front *plate* of the Mark I *foresight*, modified to suit the *protector*, the left side being reduced to make it equidistant to the right side from the centre. Both sides are stepped to engage the *slot* in the *block* of the *protector* and to form shoulders to seat on the latter, and a *groove* cut in the non-sighting side to clear the *spring*, which is a new feature.

The *spring* is attached by a *screw*, which secures the *plate* fixing the *glass tube*; it extends downwards on the sighting face, is then bent upward within the *groove* before mentioned

and again downwards, its free end being set to spring under the lower corner of the *block* of the *protector*.

3. Sights, fore, anti-aircraft, Mark I. Sights, back, anti-aircraft, Mark I.—The *foresight* is identical in principle with that of the Mark II for the Lewis .303-inch machine gun.

It is made of pressed steel and is elliptical in shape, the *major axis* being 3.82 inches and the *minor axis* 2.915 inches long.

The *body* of the *foresight* is attached to the *foresight stool* on the gun in a similar manner to that of the *luminous foresight*. The *elliptical sight* is hinged to the *body*, and is retained in vertical and horizontal positions respectively by a *leaf spring*, which is riveted to the *plate* and makes contact with the *body*.

A *tension screw* is fitted to the *body* to enable the clamping screw to be gripped sufficiently to prevent it being jarred loose during firing.

The ordinary gun *sight* is visible through an aperture in the *foresight plate*, below the ellipse.

The *body* of the *backsight* is arranged for assembly to the sighting end of the *leaf* of the gun *backsight*, the *slide* of the latter being moved forward sufficiently to enable the *body* to be assembled from underneath; a clamping *plate*, pivoted to a thumb *screw* on top of the *body* on the right, is then swung inwards over the upper surface of the gun *sight leaf*, its free end engaging a retaining *groove* in the left wall of the *leaf groove* in the *body*, where it is finally secured by tightening up the thumb *screw*.

The aperture *sight* is hinged to the *body* and is retained in the vertical and horizontal positions similarly to the *foresight*.

A secondary *aperture*, triangular in shape, is cut near the joint to enable the ordinary gun *sights* to be used, when required, whilst the *anti-aircraft sights* are raised. The gun *sights* are clear when the *A. A. sights* are hinged down.

The lowest ordinary gun sighting obtainable when the *A.A. sights* are assembled is 400 yards; the *body* of the *A.A. backsight* prevents the *sight slide* from being moved back below this range.

The *luminous sights* cannot be used when these *sights* are assembled to the gun.

The *sights* should be hinged down, when not required for actual use, in order to avoid damage.

The *A.A. foresight* must be removed from the gun to enable the latter to be packed for transport.

4. Mounting, tripod, A.A. Hotchkiss .303-inch M.G.—This *mounting* is the same as that used for the Lewis gun.

5. Holder, Hotchkiss, .303-inch M.G., mounting, tripod, A.A.—The *holder* consists of the *yoke*, with two *catches*, each with *spring* and *axis pin*; *yoke saddle* with upper *screw* with vice *pin* and split *pin*, and lower *screw* with split *pin*; and *adjustable pillar* with traversing *pivot*. These parts are identical with the corresponding parts of the *tripod mounting* for ground work, with the exception that the *spike*, with split *pin*, is omitted from the *adjustable pillar* in order that the latter may be assembled to the *tubular post* of the *A.A. mounting*.

6. Cover, breech.—This *cover* is made of canvas, and is shaped to fit round the *breech* of the gun from the *pistol grip* to the *trunnions* on the *barrel* inclusive, having two leather edged holes through which the *trunnions* project.

It is closed along the right side by four press buttons, and has a securing cord at the front end to prevent loss when not in use.

7. Cover, gun, Hotchkiss.—Is a canvas cover with cap, made to entirely encase the gun and mounting. At the muzzle end it is covered with stout leather, to which is attached a canvas sling with a releasable strap to fasten round the butt stock. This allows of the gun being carried slung over the shoulder.

8. Caps, Protecting, barrel breech.—The cap consists of a gunmetal cylinder in which a bayonet joint is formed to engage the stud on the barrel. It is locked on to the stud by means of a spring steel plate which is riveted on, and is fitted with a chain with two S hooks, and a swivel hook for attachment to the sling dee on the cap of the spare barrel case.

It protects the breech end of the spare barrel from injury when the latter is carried in its case.

9. Guns, machine, Hotchkiss, .303-in., skeleton.—A limited number of unserviceable Hotchkiss guns have been cut to show certain parts of the mechanism which are normally enclosed when the gun is assembled.

10. Diagrams, large.—These diagrams are enlarged drawings of certain parts of the gun, mounted on canvas for hanging on the walls of lecture or barrack rooms. They are a Stationery Office supply.

4. Complete set of equipment of the Hotchkiss .303-inch machine gun for cavalry regiments.§

	Per A.A. Gun.	Per Ground Service Gun.
Bag, spare parts and tools, M.G. filled, Hotchkiss .303-in. (for list of spare parts, see Sec. 5)	1	1
Bandolier, leather, 54 rounds, Hotchkiss, .303-in. M.G. ... ..	...	3
Barrels	2	2
Boxes, ammunition, feed strips, Hotchkiss .303-in. M.G.	(a)	6
Box, tin, luminous sights ... ..	...	1||
Case, wood, packing, gun, and spare barrel	1	1
Cover, gun	(b)	1
Gun, machine, Hotchkiss, .303-inch, Mk. I*	1	1
Holder, Hotchkiss .303-inch M.G. mounting tripod, A.A.	1	...
Indicator, range, Stadia, M.G.	1	...
Mounting tripod—		
A.A. Lewis or Hotchkiss, .303-in. M.G.	1	...
Hotchkiss, .303-inch M.G., Mk. II*	1	1
Machine, filling, ammunition feed strips, or belts, Hotchkiss .303-inch M.G. ... ..	...	1*
Shackles, mounting, tripod, Hotchkiss, .303-inch, M.G.	2	2
Sights, A.A.—		
Back	1	...
Fore	1	...

§ The scale of equipment for other arms is shown in the War Equipment Tables applicable to the unit concerned.

(a) 2 for A.A. gun carried in Cook's wagon.

(b) 1 for A.A. gun, carried on pack.

|| 3 per regiment only in Peace.

* 1 per squadron.

	Per A.A. Gun.	Per Ground Service Gun.
Sights, luminous —		
Back ... ..	...	1||
Fore ... ..	...	1||
Strips, feed, ammunition, Hotchkiss .303- inch M.G. —		
30-rounds	30	100†
9-rounds ... ..	...	12
Tool, resizing ammunition belts and feed strips ... ..	...	1*

* 1 per squadron.

|| 3 per regiment only in Peace.

† Plus 96 per squadron.

5. *List of spare parts, tools and appurtenances for the Hotchkiss machine gun.*

Spare parts—

Barrel	1
Cover, sight, fore	1
Ejector	1
Extractor	1
Pin, firing	2
Screw, locking	2
Shackle, complete	1
Sights, fore (H.M.L. or L.L.)	2
Spring, cartridge stop	1
Spring, ejector	1
Spring, extractor	2
Spring, feed, No. 2	2
Spring, recoil	1
Spring, sear	2
Washers, spring, sights, back... ..	6

Tools and appurtenances—

Bag, spare parts and tools, M.G.	1
Box, tin, small parts, M.G.	1
Can, oil, H.G.	1
Brush, cleaning	1
Brush, hard, armourers'	1
Cleaner, gas cylinder	1
Extractor, hand	3
Gauze, wire	4
Hammer, M.G.	1
Key, ejector	1
Machine, filling, belt or strip	1
Pull-through, double	2
Punch, No. 3, M.G.	1
Reflector, mirror, .303-in. M.G.	1
Rod, cleaning bore (jointed, complete with brass eye)	1
Screwdriver, large, M.G.	1
Wrench, dismounting	3

6. Pack equipment (pattern 1917) for Hotchkiss machine gun.

(CAVALRY.)

(See Plates J (a) to (d).)

INTRODUCTORY.

It is desirable that horses for machine gun packsaddlery purposes should be carefully selected. Animals with abnormally broad hips are unsuitable, and should not be chosen.

The equipment for the pack horse carrying the gun is known as the "gun set." It comprises certain articles of ordinary general service or machine gun packsaddlery, supplemented by other articles specially designed.

The saddlery for the three mounted numbers is that of the ordinary universal saddlery pattern in possession. Nos. 1, 2 and 3 have *ammunition wallets* in lieu of *saddlery wallets*. *Rifle buckets*, if desired, may be utilised by any of the mounted numbers except No. 1, who carries the *spare barrel case*.

The equipment for the "ammunition set" is composed of certain articles of ordinary packsaddlery, supplemented by other articles specially designed.

The detail of articles comprising the several sets is as follows:—

Articles.	Gun Set.	Ammn. Set.	Remarks.
<i>Section No. 2A.</i>			
Ropes, head, hemp, with ring, Mark IV	1	1	
<i>Section No. 5A.</i>			
Harness, P.D.G.S.— Cases, horseshoe	1	1	
<i>Section No. 5B.</i>			
Pack saddlery, G.S.—			
Bits, bridoon	1	1	
Breechings, Mk. V	1	1	
Cases, horseshoe	1	1	
Collars, breast, Mk. V	1	1	
Collars, head, Mk. IV	1	1	
Cruppers, Mk. V	1	1	
Girths, leather	1	1	
Girths, Mk. V	2	2	
Straps, girth, Mk. II	4	4	
Pack saddlery, M.G., 303-in.—			
Caps, shovel, Hotchkiss	1	...	
Case, spare barrel, Hotchkiss, Mk. III	1	...	
Cover, gun, Hotchkiss, Mk. II	1	...	
Carriers, ammunition, Hotchkiss	4	6	
Straps, retaining, 3-carrier	2	4	
Straps, retaining, 1-carrier	3	...	
Straps, handle, releasable	1	2	

Articles.	Gun Set.	Ammn. Set.	Remarks
<i>Section No. 5B—cont.</i>			
Pack Saddlery, M.G., .303-in.— <i>cont.</i>			
Girths, Mk. V, Hotchkiss ...	2	2	
Hangers, gun, sling, cavalry	1	...	
Leggings, machine gunners	1	1	
Pannels, Hotchkiss ... pairs	1	1	
Rack, ammunition, Hotchkiss ...	1	2	
Sticks, leading ...	1	1	
Straps, detachable, pick and helve ...	2	...	
Straps, detachable, shovel ...	2	...	
Trees, adjustable, Vickers' gun, cavalry, Mk. II ...	1	1	
Trees, adjustable, Vickers' gun, cavalry, Mk. II—			
Rests ...	1	...	
<i>Section No. 6A.</i>			
Saddlery, Universal—			
Reins, bit ...	1	1	
Wallets, ammunition, Hotchkiss ...	...	...	One pair of wallets
Front arch attachment ...	...	...	with front arch
Straps, guide ...	...	...	attachment, with 2
			straps guide, will
			be carried each by
			Nos. 1, 2 and 3 of the
			gun detachment.

DESCRIPTION OF ITEMS COMPRISING THE SETS.

1. **Cases, horseshoe.**—This *shoe case* is similar in pattern to that formerly used for harness purposes. It mainly differs from the saddlery pattern in that no *tube* for the *sword* exists, and that the *shoe case strap* is permanently affixed, and is not detachable as in the case of the saddlery *shoe case*.

2. **Bits, bridoon.**—Is an ordinary *bridoon bit*, but tinned to prevent rust. The *mouthpiece* is fitted at each end with a *ring* to receive the *iron stops* on the *reins*, when the ordinary *packsaddlery reins* are used, or for universal saddlery *reins* to buckle to. The "T" *pieces* are secured to the *rings* by *links* and *solid loops*, and are for fitting under the leather *loops* on the *packsaddlery head collar*.

3. **Breechings, Mark V.**—Are used for preventing the *packsaddle* from slipping forward. Its straps are looped to the *links* on the *pannels* and then buckled to the *breeching* itself. It is supported by its *hip strap*, which passes through a *loop* on the *crupper* before buckling.

4. **Collars, breast, Mark V.**—Are used to prevent the load from slipping back. The straps are looped to the *links* on the *pannels* and then buckled to the *breast-collar* itself. It is supported by its own *neckstrap*.

5. **Collar, head, Mark IV.**—Similar in design to the universal saddlery *head-collar*, but the furniture is tinned iron, and it is fitted on the lower part of the *headpiece* with leather *loops* for the "T" of the *bridoon bit* to fit into, and with a *ring* on the *noseband*.

6. **Crupper, Mark V.**—Is made with forked *straps* which are looped to the *rear arch* of the *packsaddle* and then buckled

to the *body* of the *crupper*. The use of the *crupper* is to assist in preventing the *saddle* slipping forward.

7. **Girth, Leather.**—Is a leather *steadying girth* with a *billet* and *buckle* at each end. It acts as a *steadying girth* for certain loads.

8. **Straps, girth, Mark II.**—Are for buckling the *pack-saddle girths* to. They are of leather, and made with a *loop* at one end.

9. **Stick, leading.**—Is a stick fitted at one end with a *billet* and *buckle*, and at the other end with a leather *loop*. A *loop* in the centre is also provided. It is intended for use with Cavalry to prevent the animal carrying the gun from pressing in on the leg of the rider leading it.

10. **Reins, bit.**—Are of the universal saddlery pattern.

11. **Cap, shovel, Hotchkiss.**—Is a leather *cap* made to fit on the "*pan*" of the *G.S. shovel*. It differs from the ordinary *shovel cap* in that the fitting for the *detachable strap* is on the front of the *cap* instead of the back.

12. **Case, spare barrel, Mark III.**—Is a leather *case* made to take the *spare barrel*. It is provided with a *cap*, a *steadying arm*, a *releasable suspending strap*, and a *detachable leather loop* with *releasable fittings* to connect with the *steadying arm*.

13. **Carrier, ammunition.**—This is a rectangular leather *case* made to take 300 rounds of ammunition in *strips* of 30. It is lined internally with felt to prevent noise when moving, and provided with leather *handles* for carrying purposes. A leather *draw-strap* is affixed to the inside at the bottom to assist in withdrawing the ammunition *strips*.

14. **Strap, retaining, 3-carrier.** *Strap, retaining, 1-carrier.*—Are *straps* for securing the *ammunition carriers*.

The 3-carrier *strap* is for use with the *ammunition rack* and its three *ammunition carriers*.

The 1-carrier *strap* is special for the one *ammunition carrier* under the gun.

15. **Strap, handle, releasable.**—This is for securing the *handle* of the top *ammunition carrier* to the *packsaddle tree*. One only is requisite in the case of the gun set, but two are necessary for the ammunition set, as the *carriers* are on both sides of the *tree*.

16. **Girths, Mark V.**—Made of worsted web. They are fitted with *chapes* and buckles at either end to connect up with the *girth straps*.

17. **Pannels, Hotchkiss, pairs.**—Differ from the *G.S. packsaddle pannels* in the following respects:—

- i. *Slots* are made through the substance of the "*lay*" of the off-side *panel* to allow the *retaining straps* for the *carriers* to pass through.
- ii. Two *loops* for the *shovel straps* are riveted on the "off-side" *panel* below the "*lay*."
- iii. A leather *loop* is riveted obliquely to the rear of the off-side *panel* for the *detachable strap* of the *shovel cap* to attach to.
- iv. A metal link is rivetted to the lower edge of the off-side *panel* to take the leather *girth*.

18. **Rack, ammunition, Hotchkiss.**—This is a leather-covered metal *tray* with wide leather suspension *slings* for attaching to the *hooks* of the *packsaddle*. A fixed leather *strap* is riveted under the bottom for securing the two lower

ammunition carriers, as also a metal loop for the leather girth to attach to, and a leather band retains the two slings.

19. Straps, detachable.—

Pick and helve—2 ft. 10 in. in length—for securing the articles in the brackets of *pack saddle tree*.

Shovel—two short straps for securing the *shovel handle* to the loops on the *pannel*.

20. Tree, adjustable, Vickers' Gun, Cavalry, Mk. III.—The principle of the G.S. adjustable packsaddle tree is retained, but extension pieces project beyond the arches, to which are bolted leather-covered brackets. A connecting bar of steel rod is fitted between the arches to which the gun-rest attaches.

The gun-rest is issued separately, and for this gun is affixed regimentally to the off-side. It is leather-covered, and fitted with a strap to connect with the V-sling of the gun-hanger.

This tree is issued for both the gun and ammunition sets, but the obsolescent Hotchkiss ammunition tree will first be used up for the latter sets.

21. Hanger, gun, sling, Cavalry.—Consists of:—

- i. A single suspending pad covered with asbestos cloth, with strapping fitted at one end with a ring, and at the other end a buckle to connect up with the V-sling attachment at iii.
- ii. A double suspending pad, with strapping fitted similarly to the pad at i.
- iii. A V-spring attachment, consisting of two straps (each carrying a sliding cranked link with eye), connected by a triangular buckle. The ends of the straps connect to the buckles of the double and single pads.

22. Leggings, Machine Gunners.—Made of numnah felt, shaped so that it can be buckled above and below the knee, and thus afford protection to the rider's leg when leading a machine-gun horse.

23. Wallets, ammunition, Hotchkiss.—Are specially constructed to take four strips each of 30 rounds ammunition, or 240 rounds in the pair of wallets. Each pair is joined together with a connecting band of leather, to the centre of which a releasable strap is attached. A slot is made in the connecting band for the link of the front arch attachment.

Front arch attachment.—Is a brass attachment with a fixed link (which passes up through the slot in the connecting band of the wallets), made to fit over and buckle round the centre of the front arch of saddle.

Straps, guide.—Are shaped straps for retaining the ammunition wallets to the saddle in such a manner as will permit of their being withdrawn as the rider dismounts. An extension loop slips over the front girth strap of saddle.

TO ASSEMBLE THE PARTS.

Packsaddlery.

The *pannels* and the *girth straps* are attached to the *pack-saddle tree* in the ordinary manner.

Straps, retaining, 3-carrier.—The releasable *link* ends of the *buckle portions* are passed up under the *near-side bar* of the *gun packsaddle tree* (both *side bars* of the *ammunition tree*) to the front and rear respectively of the *girth straps*, and arranged so that when secured over the *three carriers* the

quick release attachment will be about in line with the bottom of the *top carrier*.

Straps, retaining, 1-carrier.—The points of the *straps* are passed down behind the *off-side bar* of the *gun packsaddle tree*, to the front and rear respectively of the *girth straps*, then through its own fixed *loops*, then through the *sliding loops*, and afterwards through the *slots* in the "lay" of the *panel* and back through the *sliding loops* again. The *straps* are in position for loading when the fixed *loops* are drawn tight to the *side bar*.

Straps, handle, releasable.—The *strap* for the *gun set* is looped round the *off-side bar* of the *packsaddle tree*—the two *straps* for the *ammunition set* are similarly attached, one to each *side bar*.

Case, spare barrel.—Carried on the horse of No. 3 of *gun detachment*. Place the *releasable strap* round the hind arch of the saddle on the *off-side*, then attach the *spare barrel case* by its *releasable fittings*. The *girth* and *surcingle* both pass through the *detachable loop*, which when attached to the *releasable fittings* on the case acts as a *steadying arm*. When required, the body of the *spare barrel case* can be quickly detached by releasing the *fittings* which suspend and carry it.

Straps, detachable, shovel.—The *straps* are to be attached to the fixed *loops* on the *off-side panel* of the *gun packsaddle* by passing them through, points downwards.

Straps, detachable, pick and helve.—Loop to connecting *bar* of *packsaddle* to which the *gun rest* is attached, and pull taut.

Hangers, gun, sling, Cavalry.—Hook the *rings* to the *off-side* of the *packsaddle*, and button the *ties* back of *hooks*. Place the *gun-rest strap* through the *triangular buckle* of the *hanger* without buckling, then adjust the *stop strap* crosswise, and let it hang. The *single pad* with *asbestos lining* is to be to the front, *i.e.*, nearest the animal's head.

LOADING.

Gun.—Place the *gun* (in its cover) on the *gun-rest*, muzzle to the front, hook the *cranked links* to the *hooks* of *packsaddle*, and secure the load by tightly buckling the *strap* of *gun-rest*.

To disengage the *gun*, unbuckle the *gun-rest strap*, lift the *gun* upwards sharply, and draw it clear. Before doing so see that the *stop strap* at end of *gun-rest strap* is crosswise, as this prevents the latter strap falling out of the *triangular buckle*.

Ammunition rack.—One *ammunition rack* is required for the *gun horse* and two for the *ammunition horse*, and in each case they are suspended from the *hooks* of the *packsaddle*.

Ammunition carriers.—*Ammunition carriers* are to be always placed with the *fastening studs* next to the *panel* of the *packsaddle*.

One *carrier* is suspended under the *gun*, secured in position by the 1-carrier *retaining straps* previously affixed to the *packsaddle*. Three *ammunition carriers* are placed in each *rack* and are kept in position by the 3-carrier *retaining straps* previously affixed, but the two bottom *carriers* are also separately secured by the *strap* attached to the *rack*, as in practice it has

been found that on coming into action one *carrier* is a convenient load for a man to handle, and there would thus be the possibility of the other two falling out of the shallow *rack*.

The outer *handles* of the *carriers* in the *racks* are interlaced, and the top *handle* on either side is secured by *releasable handle straps*, which have previously been affixed.

Girth leather.—The *ammunition racks* on the ammunition horse are kept in position by the "*girth leather*," which passes under the animal's belly and is buckled to the *staple* under each *rack*.

On the gun horse it connects the *rack* and the *loop* at bottom edge of off-side *pannel*.

Shovel.—The *shovel* is carried under the single *carrier* on the off-side of the gun horse, secured by taking a couple of turns round the *handle* by the two *shovel straps* previously affixed, and steadied by securing the *detachable strap* of the *shovel cap* to the *loops* half-way up the rear of the *pannel*.

The *shovel* is more conveniently carried on the *pannel* if the *handle* is shortened 6 inches. This may be done regimentally.

Spare barrel.—The *spare barrel* is placed in the *spare barrel case*, with spare *shackle* assembled.

Nosebags and shoecase.—Attach as most suitable for adjustment of weight.

Pick and helve.—Place in the *brackets* of the *packsaddle helve* on top of the *pick*, and secure by the *straps* already affixed to the *connecting bar*.

Tool bag.—Secure the *strap* over the *pick helve*, and then round the *arches* of the *packsaddle*.

Ammunition.—The amount of ammunition per gun is distributed as under:—

On the gun-pack horse (in 30-round strips)	1,200 rounds.
Share for one gun on the ammunition horse (in 30-round strips)	900 „
In <i>bandolier</i> with No. 1	54 „
In <i>bandolier</i> with No. 2	54 „
Total rounds with gun	2,208 „
Add—	
Squadron reserve carried in the limbered G.S. wagons (in 30-round strips)	900 „
Total rounds available for gun	3,108 „

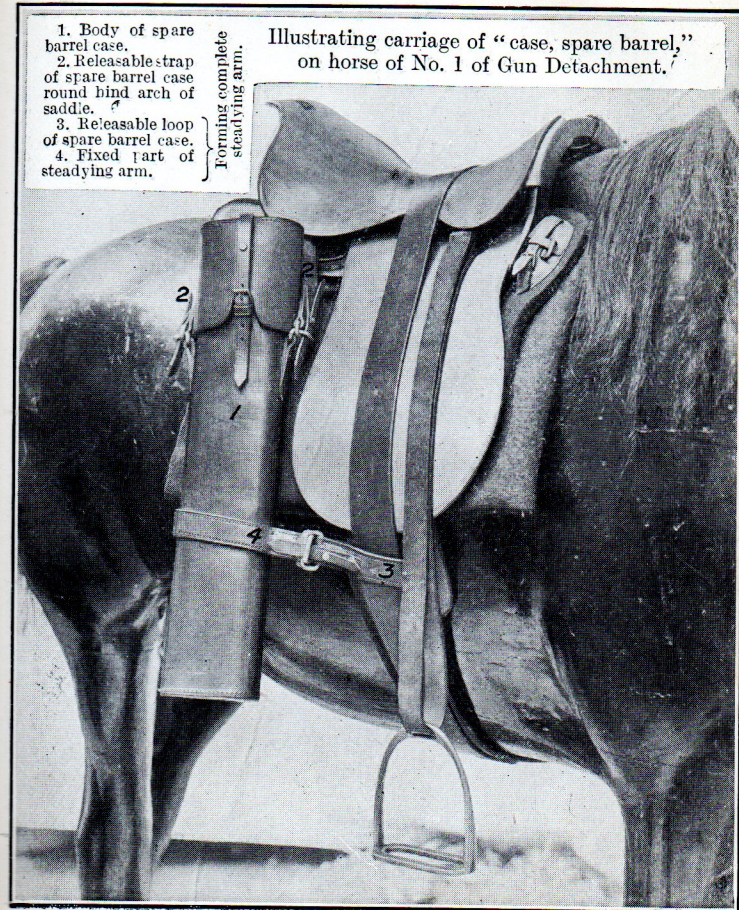
As already alluded to in the introductory remarks, one ammunition horse per two guns is provided, and on it is carried 1,800 rounds, packed in six *carriers* (three on each side).

Load tables.—The load to be carried by each horse is as follows:—

Appendix III.]

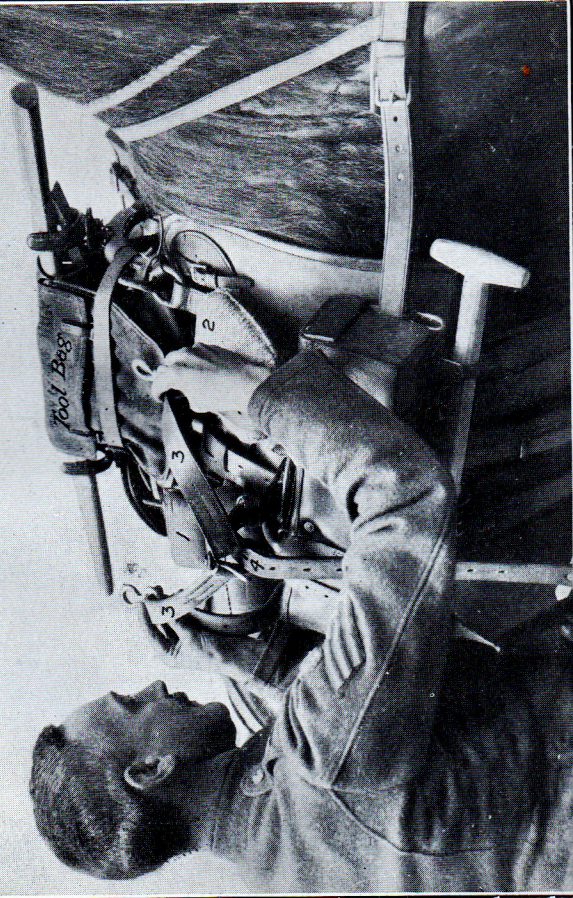
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Off side.	lbs.	Centre.	lbs.	Near side.	lbs.
Hotchkiss gun and tripod in cover ...	33	GUN HORSE. Pick and helve, with two detachable pick and helve straps ...	7½	3 carriers, with 900 rounds, ammunition retaining straps and handle strap ...	76½
Hanger, gun, sling, Cavalry ...	4			Ammunition for rack carriers ...	7
1 carrier, with 300 rounds of ammunition, and retaining straps ...	26			Total ...	83½
Shovel, with shovel cap and straps ...	5				
Tool bag (filled) ...	12				
Total ...	80				
AMMUNITION HORSE.					
3 carriers, with 900 rounds of ammunition, retaining straps and handle strap ...	76½	Nil.	...	3 carriers, with 900 rounds of ammunition, retaining straps and handle strap ...	76½
Ammunition racks for carriers ...	7			Ammunition for rack carriers ...	7
Total ...	83½			Nosel bag (filled) ...	7
				Total ...	83½

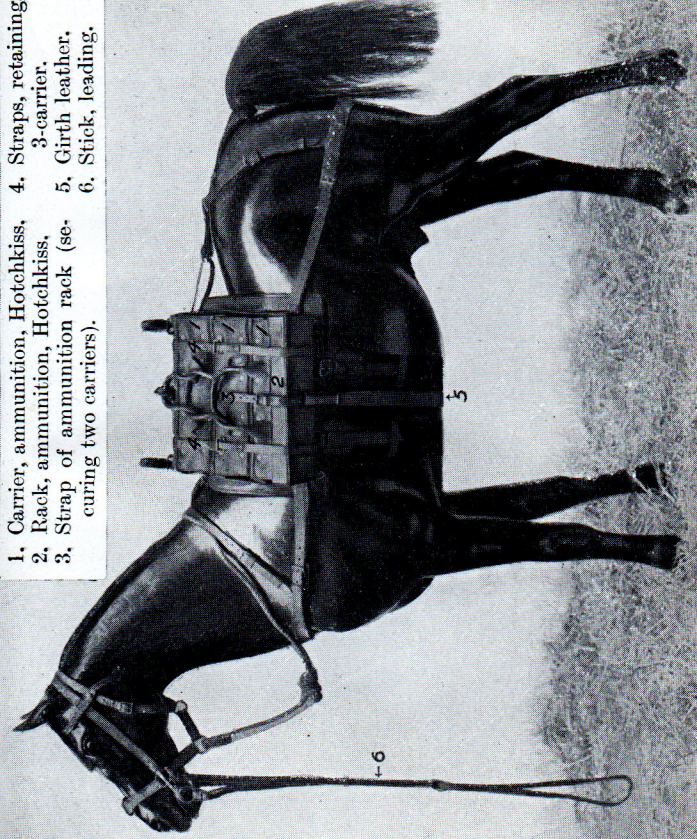


1. Double pad of gun-hanger.
2. Single pad of gun-hanger (asbestos covered).

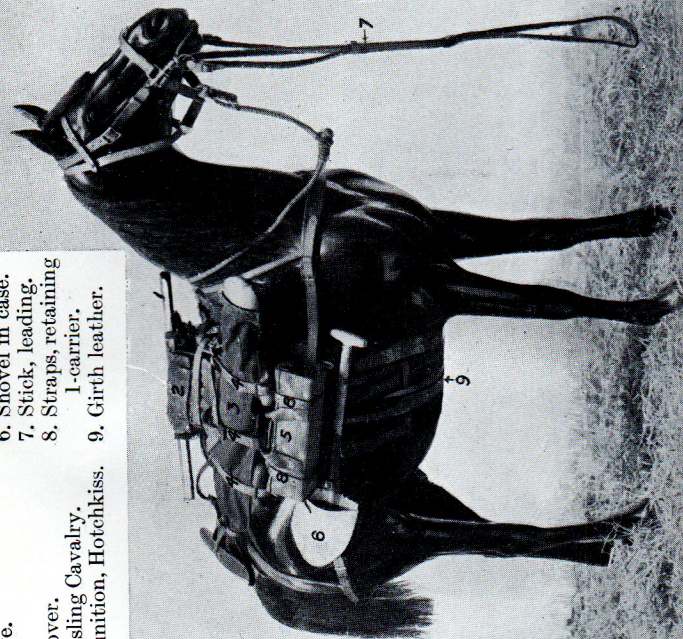
3. V-sling of gun-hanger.
4. Gun-rest strap passed through triangular buckle of gun-hanger.



1. Carrier, ammunition, Hotchkiss.
2. Rack, ammunition, Hotchkiss.
3. Strap of ammunition rack (securing two carriers).
4. Straps, retaining 3-carrier.
5. Girth leather.
6. Stick, leading.



1. Pick and helve.
2. Tool bag.
3. Gun in gun-cover.
4. Hanger, gun, sling Cavalry.
5. Carrier, ammunition, Hotchkiss.
6. Shovel in case.
7. Stick, leading.
8. Straps, retaining
- 1-carrier.
9. Girth leather.



APPENDIX IV.

Section I.—INSTRUCTIONAL COURSE FOR THE WEBLEY REVOLVER.

1. The Annual Instructional Course consists of :—

(a) Twenty hours' instruction and practice with service ammunition in the case of infantry,

or

(b) Thirty-five hours' instruction and practice in the case of mounted arms.

2. The first eight hours at least should be devoted to preliminary instruction, comprising :—

- i. Lectures.
- ii. Range drill.
- iii. Preliminary empty revolver practice.
- iv. Tests.

3. Annual Course.—The practices with service ammunition are as follows :—

Part I.—INSTRUCTIONAL.

Number and Practice.	How fired.	Number of Rounds.	Range.	Target.	Score. Possible Points.
1. Preliminary	Single action...	4 each hand	10 Yards.	4 ft. × 2 in. line	No score.
2. Grouping ...	Do. ...	Do.	Do.	4 ft. with 2-in. aiming mark	Do.
3. Application	Double action	3 each hand	Do.	2, Fig. No. 2	Do.

Part II.—CLASSIFICATION.

Number and Practice.	How fired.	Number of Rounds.	Range.	Target.	Score, Possible Points.
4. Deliberate	Lying	4	Yards.	Fig. No. 5	20
5. Rapid firing	Single action (1 shot at each target), 12 secs. allowed for the practice	4 either hand	20	4, Fig. No. 2	20
6. Rapid fire (attack)	Double action firer advancing 5 yards. Time allowed for the practice, 10 secs.	6 either hand	15-10	6, Fig. No. 2 (1 charging)	30
7. Do. ...	Do. fired in respirator	Do.	Do.	Do.	30
8. Rapid fire (defence)	Single or double action drawing the loaded revolver from holster. Time allowed for practice, 4 secs.	2 either hand	15-5	2, Fig. No. 2 charging	10
9. Snap-shooting	Single action target appearing for 1 sec. for each shot	3 each hand	10	Fig. No. 2	30
10. Snap-shooting (Traversing target)	Single action ...	2 each hand	10	Fig. No. 2	20
11. Snap-shooting (See note to para. 8.)	Single and double action. Attacking and clearing trench	12 right and left hands	various	Fig. No. 2	60 plus 10 for tactics } 70

	Rounds.			
Part I	22
Part II	44
Total rounds	66

Part II.—Possible total score ... 230

For annual course, total number of rounds to be issued: 72 ball.

For details of scoring, *see* para. 8.

A special recruits revolver course for recruits of the Royal Tank Corps is laid down in Tank Training.

4. Instructors' Course.—One officer and one non-commissioned officer per Company will be trained as instructors. These instructors will fire, in addition and preliminary to the Classification Practices, Practices 1 to 8 inclusive.

100 rounds, .455 ball. To be issued for the Instructors' Course.

Balance of rounds to be used at the discretion of the officer in charge for extra firing instruction, extra practices, &c., and to allow for missfires and accidental shots.

5. Practices mounted, in addition to the practices in para. 3, will be fired with service ammunition by mounted troops, who have qualified in the annual course for infantry, as follows:—

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Number and Practice.	How Fired.	Direction.	Number of Rounds.	Targets.	Pace of Horses.
12. Application	By single action	Half right	5 right hand	5, 4 ft. x 4 ft. with 4-inch aiming mark Do.	Walk.
13. Do.	By double action	Do.	Do.	Do.	Canter
14. Do.	By single action	Do.	Do.	5, Fig. No. 2	Walk.
15. Do.	By double action	Do.	Do.	Do.	Canter.
16. Snap shooting	By double action	Front ...	4 right hand	4, Fig. No. 2	Canter
17. Do.	By double action	2 s h o t s, right flank, 2 s h o t s, rear	Do.	Do.	Canter.

TOTAL ROUNDS ... 36.

Total number of rounds to be issued: Ball, 48; Blank, 10.
Practices 16 and 17 to be repeated.

NOTES.—No. 1. For Preliminary Practice, *see* Secs. 61 to 64 and Appendix IV, Section III.

No. 2. For position of targets, *see* Diagram of Range, Plate 120.

No. 3. For scoring, *see* para. 8.

6. Course for Territorial Army.

- The course for officers, warrant officers, non-commissioned officers and men equipped with a pistol in time of war is Practices 1, 2 and 3 of Part I of the Annual Revolver Course detailed in para. 3.

Total rounds ... 24 ball.

N.B.—This para. is in abeyance till further orders.

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- Adjutants will draw ammunition and fire the course prescribed for the corresponding unit in the Regular Army.

Total rounds: Infantry, 72 ball; mounted units, 120 ball (15 blank).

- Balance of rounds in (i) and (ii) above to be used at the discretion of the officer in charge for extra firing instruction, extra practices, &c., and to allow for missfires and accidental shots.

7. Course for Officers Training Corps.

- Officers of the Officers Training Corps, except medical units, will fire the course laid down for the Territorial Army in para. 6.

- Cadets of veterinary contingents will fire the course laid down for the Territorial Army in para. 6 twice in the first year and once every subsequent year.

- Total rounds per officer exercised (veterinary contingent only)—

Ball.

First year ... 48

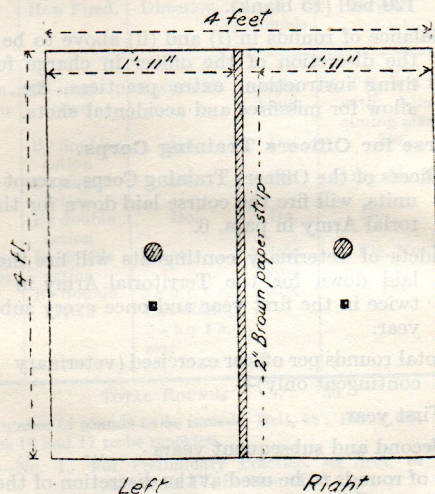
Second and subsequent years ... 24

Balance of rounds to be used at the discretion of the officer in charge for extra firing instruction or to allow for missfires and accidental shots.

N.B.—The actual ammunition available for practice, and the instructions as to the numbers to be exercised in the courses, will be specified annually in Army Orders.

8. The Targets and the methods of scoring are as follows:—

- i. The combined preliminary and grouping practice target will be marked as below:—



- (a) The target is 4 ft. square, covered with white paper, and divided by a 2-inch by 4-feet black or brown paper strip, placed vertically through the centre. This line is the mark in the preliminary practice.

- (b) The two portions on each side of the vertical line are grouping targets for the right and left hands respectively.

The aiming mark on each side is a 2-inch black bull's eye. The 1-inch black patch, placed 6 inches below centre, is to remind the firer that his trigger pressure should be started before the revolver arrives at the mark.

- ii. The figure No. 5 will be marked with rectangles as shown in Plate 124, with a central black patch to denote the point of aim.

- iii. The figure target No. 2 will be marked with a rectangle as shown in Plate 125 (a).

The waist-line will be marked by a black patch in the centre to denote the point of aim.

The top of the rectangle will be 18 inches below the top of the head line.

- iv. Figure target No. 2 used for Practice No. 11 (the Trench practice) will be marked with a line parallel with the edge $\frac{1}{2}$ inch distant, to denote the inner outline of the target. No rectangles, see Plate 125 (b).

v. **Scoring.**—Practices Nos. 5 to 10 inclusive— Points.

Each shot in the 16-inch \times 12-in. rectangle	=	5
Each shot on remainder of target	=	3
Practice No. 4, 8-inch \times 4-inch rectangle ...	=	5
Remainder of target	=	3

In Practices Nos. 12 and 13 the rectangle grouping measure (Plate 126) will be applied, centre to regulation point of aim.

Practice No. 11—	Points.
Each shot in the inner outline of the target	= 5
Remainder of target	nil.
Tactics	= 10

vi. **Classification Standards**—Para. 3, Part II—

	Points.
Possible score	=230
90 per cent. of possible score = Marksman...	=207
75 per cent. of possible score = First Class	
shot	=172
55 per cent. of possible score = Second Class	
shot	=126
Under 55 per cent. of possible score—	Failed.

Note.—If no trench is available for Practice No. 11, classification will be made on Practices 4-10, according to the above percentage standards. The 12 rounds allowed for this practice will be expended on surprise targets and counted as a battle practice—details to be worked out locally.

9. Safety Regulations.—On each of the first two days of preliminary instruction the following regulations will be read to those under instruction, and subsequently they will be catechised frequently until the officer responsible for the instruction is satisfied that every man fully understands them:—

- i. A revolver must never be brought to a range loaded, or be so pointed that, if discharged, it would endanger the firer or others.

- ii. A revolver, on being drawn from the *holster*, must be immediately opened and examined.
- iii. A revolver must never be put into or carried in the holster with the *hammer* cocked.
- iv. Whenever a revolver is picked up, it is to be opened and examined.
- v. No weapon is to be loaded except by order of the officer in charge at the firing point.
- vi. Both during and after loading the revolver is to be kept pointing towards the target.
- vii. Before firing begins the officer in charge at the firing point will see that everyone, except those firing, is at least 5 yards in rear of the firing point.
- viii. An officer or N.C.O. will be responsible for range discipline in rear of the firing point.
- ix. After firing, the officer in charge will give the order "Unload." No one will be allowed to move towards the target until the officer in charge gives an order to that effect.
- x. Before beginning practice with an empty revolver the pupil must open the weapon and prove that it is not loaded. He may not hand over a revolver without again proving.
- xi. No promiscuous "snapping" is allowed.
- xii. Drill cartridges will never be used in the vicinity of live rounds.

NOTES FOR INSTRUCTORS.

During Part I, Instructional Range Practices.

Practice 1.

I.—Explanation.

(a) Practical application of first stage trigger pressing, single action ("correct squeeze").
Sec. 62.

(b) Line represents plane of vertical lift. Eyes on the centre of the line.

(c) Correct *trigger* release will ensure no disturbance of the upward path of the revolver, and the shot will be thrown on or near the line.

II.—Demonstration.

III.—Firing practice. Instructor watches for faults. (See Notes for Instructors on Trigger Pressing.)

IV.—Criticism at the target by the instructor.

Practice 2.

I.—Explanation.

(a) Practical application of second stage of trigger pressing, single action (timing of trigger release).

(b) Application of squeeze learnt in Practice 1 to motion of revolver so as to time *trigger* release at the moment the *sights* intercept the line of sight.

(c) Line of sight and aiming mark.

II.—Demonstration.

III.—Firing practice. Instructor watches the firer for faults.

IV.—Criticism at target by the instructor.

Practice 3.

I.—Explanation. Practical application of trigger pressing double action.

II.—Demonstration.

III.—Firing practice. Instructor watches for faults. He notes the *trigger* pressing.

IV.—Criticism at the target by the instructor.

Section II.—REVOLVER ANNUAL COURSE.

PROGRAMME OF PRELIMINARY INSTRUCTION (issued as a guide only).

(Chapter III).

Lesson No.	Time in Minutes.	Subject of Work.
1	45	Lecture : Revolver training.
—	—	Secs. 58 to 60.
—	—	Characteristics, Deductions, System of Training.
—	—	Methods of Firing.
2	5	Squad Work. Read Sec. 61 paragraph 1, and Appendix IV, Section 1, para. 9, "Safety Regulations" to the class.
—	—	Teach safety precautions.
—	5	Explain correct use of Webley <i>backsight</i> .
—	20	Fitting hand to revolver, correct grip and holding.
—	10	Care and Cleaning.

Lesson No.	Time in Minutes.	Subject of Work.
	15	Range Drill—with detail—up to "Ready position."
3	5	Squad Work. Read Sec. 61, 1, and Appendix IV, Section I, para. 9, to the class.
	—	Teach safety precautions.
	25	Range drill from "To cock" to "Return revolvers" with detail.
	10	Correct grip, and testing grips.
	—	Explain Sec. 61, 3.
	15	Trigger pressing instruction, Sec. 62,
4	—	Squad Work. Safety precautions.
	15	Range drill. Complete drill without detail.
	10	Trigger pressing instruction.
	15	Firing exercises Nos. 1 and 2.
	—	Explain Sec. 63, paras. 1-8.
	15	Muscle exercises 1, 2 and 3.
5	—	Squad Work. Safety precautions.
	10	Range drill. As drill movements without detail.
	30	Firing exercises 3, 4 and 5.
	—	During intervals of rest, explain Sec. 63, para. 1-8, and care and cleaning.
	15	Muscle exercises 1, 2 and 3.
6	—	Squad Work. "Safety Regulations."
	10	Range drill. As drill movements.

Lesson No.	Time in Minutes.	Subject of Work.
	30	Firing exercises 1 to 5. (During the intervals of rest ask questions on characteristics, system of training, trigger pressing, and methods of firing.)
	15	Muscle exercises 1, 2 and 3.
7	55	As for lesson No. 6.
8	55	Squads amalgamated in pairs. One instructor takes classes in work as for lesson 6.
	—	Other instructor conducts individual pass-out firing tests (<i>see</i> Sec. 61, 2).

Section III—MOUNTED PRACTICES.

1. Preliminary Instruction (Empty Revolver).—The class will be dismounted, and formed in single rank, the files one pace apart. Instruction will be given with empty revolvers in the method of firing shots in different directions. Revolvers will be inspected and returned to *holsters* before instruction begins.

2. Method.—On the command "Raise—Revolvers," the weapons will be drawn and raised, the revolver hand level with and close to, the outside part of the shoulder, elbow touching the side of the body, the *barrel* vertical; when employing the single action the *hammer* will be cocked as the revolver arrives at this position.

On the order "Ready—Fire," the revolver will be brought down to the mark, arm fully extended, and the trigger pressed.

The firer should carefully note his error of aim, if any.

3. Target.—The marks should be figure target No. 5, with a white or black patch aiming mark, placed centrally on the target. One target for each firer, at a distance of 5 yards placed level with his feet.

The practice to be carried out to the half right and half left fronts to the flanks and to the right rear.

4. Preliminary Practices, Mounted.—Practices 12, 13, and 17 will be rehearsed by each firer with an empty revolver and also one or more of those practices with blank ammunition.

Firing Instruction.

5. Single Action.—In practices in which the single action is employed the revolver will be raised up close to the shoulder, with elbow touching the side of the body and the barrel vertical. When in this position the *hammer* will be cocked by the thumb. About 5 yards from and before passing the firing point for each target, the revolver should be lowered with extended arm pointing towards the target and the shot fired as the alignment is caught without any attempt to prolong or improve the aim. Directly the shot is delivered the revolver will again be raised to the shoulder position if another shot is to be fired, and the same series of actions repeated. The revolver should be returned to the *holster* immediately after the last shot of the practice has been discharged.

6. Double action.—When employing the double action, the above directions will be followed but without bringing the *hammer* to the full cock.

7. Instructions for conduct of Practices.—The squad will be formed as shown in the diagram dismounted. Each practice will be explained by the instructor immediately before it is fired. At the word of command (*e.g.*, No. 1, five rounds, Load! Mount! Right turn! Walk! March! On the targets! Canter!) each firer will move out from the right, adopting the pace required by the practice, fire one shot at each target, return the revolver to the *holster* and approach the left flank of the squad at the trot, taking up his position on that flank.

The hits will then be recorded, the targets patched and, when ordered by the officer in charge, the next firer will load, mount, move off, and carry out the practice as described. In Practice 17 for the third and fourth targets, the firer will turn in his saddle and begin pointing his revolver as he passes each target, firing a shot at each before he crosses the firing point.

8. Position of targets.—In Practices 12, 13, 14 and 15, targets will be placed at 20-yard intervals, 10 yards to right of the track facing the firing point, the firing point for each target being on the track 10 yards from the spot where a straight line drawn from the target meets the track at right angles; each shot to be fired before crossing this point.

In Practice 16, targets will be placed 5 yards apart, 2 yards to the right of the track, the firing point being 5 yards from each target.

In Practice 17, the first two targets—5 yards apart—and 5 yards to the right of the track, the firing point being

at a spot on the track where a straight line drawn from the target meets the track at right angles, the second two targets at same intervals, the firing point for these being on the track 5 yards beyond each target, the firing point for each practice and target being marked by a small coloured flag at the side of the track.

9. **Tractability of Mounts.**—Horses should be accustomed as early as possible to the reports of revolvers, fired near to them. They should, when possible, be picketed about 10 yards behind the firing point during dismounted practices. They can also be trained by being gradually brought near to the firing point during the firing of such practices. After this stage of training, blank ammunition may be fired near or over the animals. When mounted practices are about to be begun, care should be taken that horses are brought to the starting point without undue haste.

Section IV.—REVOLVER PRACTICE RANGES.

1. As the extreme range of the 265-gr. bullet fired from the Webley Service revolver is 1,550 yards, adequate precautions for safety should be taken during firing.

2. Ranges should be so sited that a firer, when facing his target, does not have the sun in his eyes.

3. Old quarries, sand, or chalk pits, often provide excellent sites for revolver ranges. When these are not available, a stop butt of at least 18 feet in height should be provided for 20 yards range, when there is no danger area.

4. Natural stop butts, composed of rock, broken stone or chalk with flint deposits, are liable to be sources of danger to firers at short ranges.

5. Owing to the curved and hollow surfaces of flints in chalk, or broken rock, portions of bullets will sometimes be turned back at acute angles. Such natural stop butts should be revetted with turfs, or faced with timber to prevent the return of the lead.

6. Sand, or soft earth, make satisfactory stop butts, as such material quickly catches the lead. The recovery of metal is also comparatively easy.

7. Wing butts should be at an angle of 45 degrees to the stop butt.

8. The floor of the range should be level, free from stone and properly drained.

9. Close up to the stop butt, wooden box sockets should be sunk into the ground and so made as to take the legs of the grouping targets, or the stakes of the fixed and disappearing figure targets.

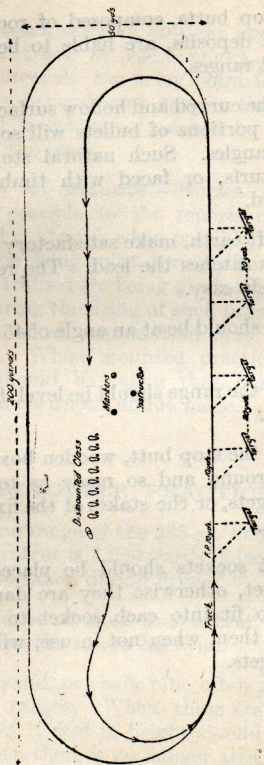
10. The target sockets should be placed behind a small protecting parapet, otherwise they are damaged by bullets. Wooden plugs to fit into each socket to prevent earth or sand, &c., filling them when not in use, will save much time in setting up targets.

PLATE 120.

MOUNTED PRACTICES.

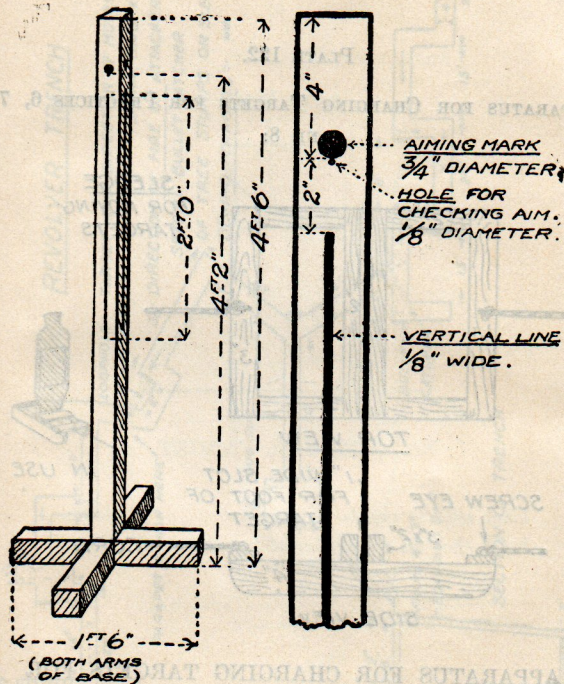
DIAGRAM OF RANGE.

Scale: 1 inch = 20 yards.



The positions of targets in Practices 12, 13, 14 and 15

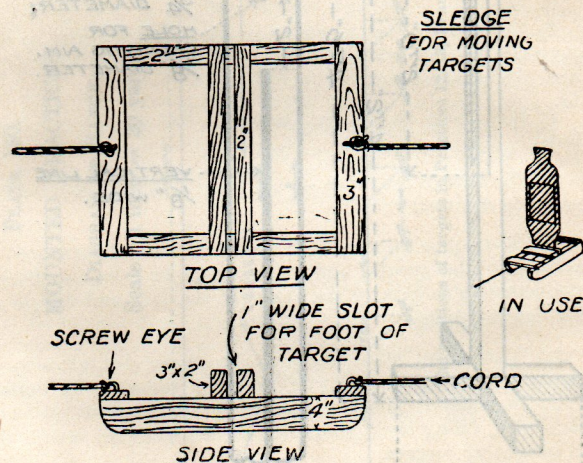
PLATE 121.



AIMING POST FOR EMPTY REVOLVER PRACTICE.

PLATE 122.

APPARATUS FOR CHARGING TARGETS FOR PRACTICES 6, 7,
AND 8:



APPARATUS FOR CHARGING TARGETS FOR
PRACTICES 6, 7 AND 8.

PLATE 123.

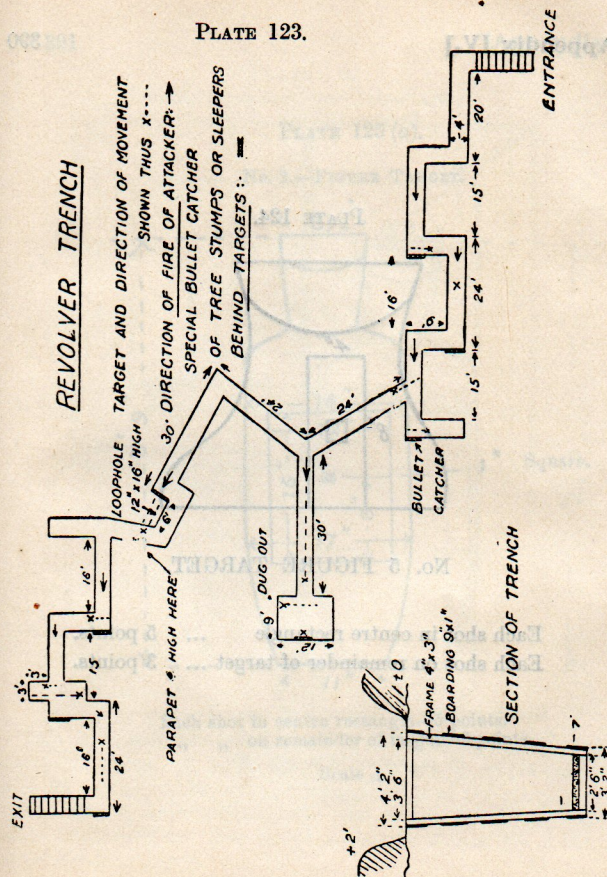
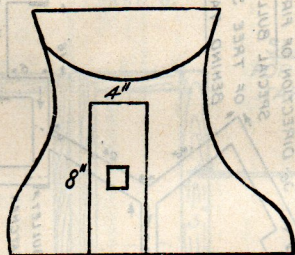


PLATE 124.

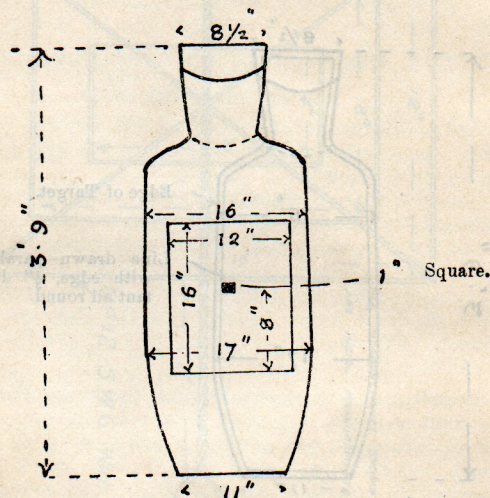


No. 5 FIGURE TARGET.

Each shot in centre rectangle ... 5 points.
 Each shot on remainder of target ... 3 points.

PLATE 125 (a).

No. 2.—FIGURE TARGET.

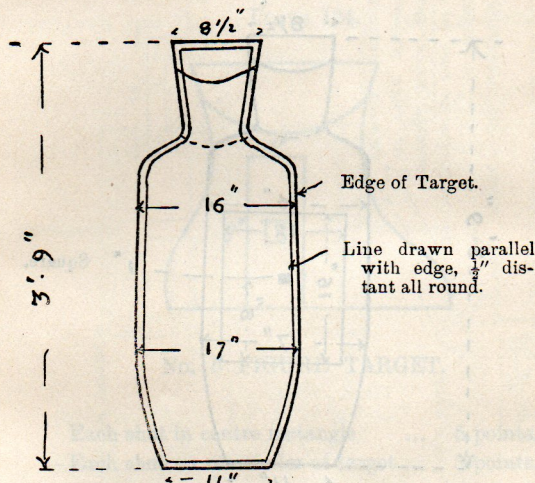


Each shot in centre rectangle—5 points.
 " " on remainder of target—3 points.

Scale $\frac{1}{16}$

PLATE 125 (b)

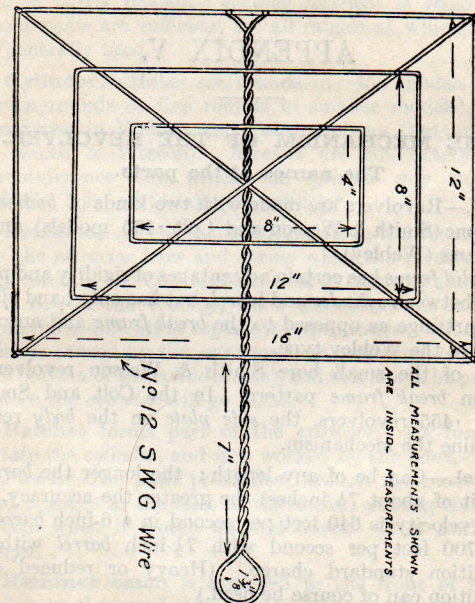
No. 2.—FIGURE TARGET.



Marking of Figure Target for Trench Practice.
 Each shot inside inner outline of target—5 points.
 " " on remainder of target—Nil.

Scale $\frac{1}{16}$

PLATE 126.
 REVOLVER GROUPING RECTANGLE.



This is made of wire, and is to be used for measuring groups of shots. It is to be placed vertically on the target with its centre on the point of mean impact of the group.

The lateral lines indicate the size of the group, e.g., all shots contained by the centre rectangle 4-inch by 8-inch equal a 4-inch group.

APPENDIX V.

THE MECHANISM OF THE REVOLVER.

The names of the parts.

Body.—Revolvers are made with two kinds of *bodies*—the *solid frame* (Smith & Wesson and Colt .455 models) and the *break frame* (Webley).

The *solid frame* has certain advantages of rigidity and perfect register between *cylinder* and *barrel*, but has only hand ejection of the cartridge as opposed to the *break frame* and automatic ejection of the Webley type.

Some of the small bore Smith & Wesson revolvers are made on *break frame* pattern. In the Colt and Smith & Wesson .455 revolvers, the *side plate* on the *body* removes to examine the mechanism.

Barrel.—Can be of any length; the longer the *barrel* (to the limit of about $7\frac{1}{2}$ inches) the greater the accuracy. The muzzle velocity is 640 feet per second in a 6-inch *barrel* and about 700 feet per second with $7\frac{1}{2}$ -inch *barrel* with .455 ammunition standard charge. (Heavy or reduced charge ammunition can of course be used.)

The *barrel* of the Webley has 7 *grooves* right-hand rifling. The *barrel* of the Smith & Wesson has 5 *grooves* right-hand rifling. The *barrel* of the Colt has 6 *grooves* left-hand rifling. Muzzle energy (.455) 312 foot pounds, extreme range 1,550 yards at 32° elevation.

Sights are adjustable in target models. Usually fixed in 6-inch *barrel* models. Webley *foresight* is removable. The fixed *sights* are sufficient for all ranges at which the revolver is generally used.

Cylinder.—Holds six rounds in .455 models (sometimes seven rounds or five rounds in smaller models). Revolves clockwise in Webley and Colt revolvers (but anti-clockwise in Smith & Wesson). *Recesses* are cut externally in the circumference into which the *cylinder stop* engages. The *cylinder* is bored to take the *extractor*.

Extractor (or ejector) is automatic in the Webley, operated by the *extractor lever* and *spring* when the revolver is broken. Operated in the Colt and Smith & Wesson by the hand.

N.B.—In the Webley, when the *cylinder* is removed, it is sometimes difficult to replace it—the *extractor* will not go down. This is caused by the *extractor lever* projecting (can be seen at the bottom of the *cylinder axis*), and this has to be pressed down before the *cylinder* will go home.

Ratchet forms part of the *extractor*. Its function is to rotate the *cylinder*, and it is worked by the *pawl*.

Pawl.—The *pawl* protrudes through the face of the *body* and engages in the *teeth* of the *ratchet*, causing the *cylinder* to rotate when it works up and down. It is worked off the *trigger*.

Hammer catch is attached to the front of the *hammer* and is used to cock the *hammer* by pressure from the *trigger* when shooting by the continuous or double action.

Return Pawl.—In the Webley and Colt is a steel strip below the *hammer* and actuated by the *mainspring*. It presses the *pawl* forward and bears against a projection at

the bottom end of the hammer, rebounding the hammer and withdrawing the *hammer nose* free from the cap of the cartridge after firing a shot and releasing the *trigger*.

Cylinder stop protrudes through the floor of the *body* and engages in the *recesses* of the *cylinder*. It is actuated by the *cylinder stop lever* worked off the *trigger*. It assists (together with the *pawl*) in holding the *cylinder* stationary at the moment of firing.

The hammer.—The design of a revolver allows of a rotating *hammer* and *trigger* being fitted. In automatic pistols the *hammer* frequently slides horizontally and disengages from the *trigger* by a jerk. The rotating *hammer* and *trigger* design has the advantage that a very delicate *trigger* release ensures as the two roll off each other. There is no drag or jerk.

The *hammer* rotates on its *axis pin*. At the bottom end is the "*bent of the hammer*" which engages with the *nose* of the *trigger* when the *hammer* is cocked.

The *hammer* is attached to the *mainspring*, which actuates it, by a *mainspring T-piece* and *link* or *stirrup*.

The *striker* is solid with the *hammer* in the Webley but loose and removable in the Colt and Smith & Wesson models.

Trigger rotates on its *axis pin*. It carries and actuates the *pawl*, the *mainspring auxiliary* communicating the pressure of the *mainspring*. The *nose* of the *trigger* bears behind the point of the *hammer catch* for double-action and engages the limit of the *hammer* for single-action shooting.

Mainspring is a V-shaped double spring in the Webley and Colt revolvers and a single bow-shaped spring in the Smith & Wesson. The Smith & Wesson has a *mainspring adjusting screw*.

Locking Bolt.—This is fitted to *solid frame* revolvers like the Colt and Smith & Wesson. It prevents the action being broken and closed with the *hammer* cocked. This ensures safety, and at the same time preventing the mechanism from being damaged (*pawl* and *ratchet*) by opening and closing the revolver with the *hammer* cocked. In the Colt, this part is called the "Colt patent positive lock." The Colt revolver cannot be accidentally discharged by dropping it on the ground.

Stocks side.—These are made of wood in the Smith & Wesson and vulcanite in the Colt and Webley .455 revolvers. Three sizes of *stocks side*—large, medium and small—to fit the man's hand, are provided for the Mark VI Webley revolver.

APPENDIX VI.

Appendix VI.]

TRAJECTORY TABLES.

Height of Trajectory (in feet) above the Line of Sight of the S.M.L.E. Mark III Rifle.

(a) Mark VI ammunition = M.V. 2,060 f.s.

(b) Mark VII ammunition = M.V. 2,440 f.s.

(a) Mark VI.

Range in Yards.	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400
200	1-0	1-7	2-6	3-7	5-0	6-4	8-4	10-6	13-1	15-8	19	22	26
300	2-1	3-7	5-6	7-8	10-5	13-7	17-8	22-4	27-5	33	39	46	55
400	3-4	5-9	8-9	12-4	16-8	22-0	28-4	35-3	43	52	62	73	86
500	4-9	8-4	12-8	17-7	23-8	31-2	39-8	49	60	72	86	102	120
600	6-5	11-1	16-8	23-6	32-0	41-2	52	65	79	95	113	133	155
700	8-4	14-3	21-5	30-0	40-3	52	64	81	100	119	142	167	194
800	10-5	17-8	26-7	37-3	50	64	81	100	122	146	173	206	239
900	12-8	21-5	32-5	45	60	77	97	115	142	172	205	241	282
1,000	15-4	26-0	38	55	73	94	111	135	165	196	232	271	325
1,100	18-3	31	46	65	84	107	124	155	190	226	267	318	374
1,200	21	36	53	73	94	111	134	166	205	245	290	346	405
1,300	25	41	62	84	109	127	142	177	220	265	318	380	448
1,400	29	48	70	97	123	143	161	196	245	295	354	421	495
1,500	33	54	78	109	138	162	182	216	269	325	388	461	545
1,600	37	62	88	119	150	177	201	240	298	358	428	507	592
1,700	42	69	99	131	165	195	221	265	328	393	468	548	632
1,800	47	78	111	143	180	212	240	288	356	426	504	588	672
1,900	53	86	125	154	192	227	258	311	386	461	544	628	712
2,000	59	96	139	170	210	245	280	340	416	499	586	672	756
2,100	65	106	153	188	227	268	307	376	454	541	630	718	802
2,200	72	116	168	207	248	292	338	416	499	589	680	770	854
2,300	79	128	184	222	268	317	372	454	541	634	728	820	904
2,400	86	140	202	244	295	348	406	486	574	668	764	858	942
2,500	94	153	222	274	324	382	444	524	614	708	804	898	982
2,600	103	168	244	300	354	418	488	568	654	748	844	938	1022
2,700	115	188	274	334	394	464	538	618	704	794	888	982	1066
2,800	128	212	308	374	444	518	594	674	764	854	948	1042	1126

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(a) Mark VI—continued.

Range in Yards.	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
1,600	31	36	41	46	52	58	65	72	79	86	90	98	106
1,700	64	74	85	96	108	120	134	148	165	185	208	237	267
1,800	100	115	131	148	167	186	206	226	250	278	308	337	367
1,900	139	155	174	194	215	236	258	282	310	340	370	400	430
2,000	180	206	234	264	295	326	358	390	424	458	492	526	560
2,100	224	256	289	324	360	396	432	468	504	540	576	612	648
2,200	270	308	348	388	428	468	508	548	588	628	668	708	748
2,300	320	364	412	460	508	556	604	652	696	740	784	828	872
2,400	372	424	480	532	584	636	688	740	792	844	896	948	1000
2,500	429	488	548	604	660	716	772	828	884	940	996	1052	1108
2,600	489	558	628	696	764	832	896	960	1024	1088	1152	1216	1280
2,700	555	636	716	792	868	944	1020	1096	1172	1248	1324	1400	1476
2,800	627	718	808	892	976	1060	1144	1228	1312	1396	1480	1564	1648

[Appendix VI.]

(b) Mark VII.

Range in Yards.	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400
200													
300	.6	1.0											
400	1.3	2.3											
500	2.1	3.8	3.7	2.5									
600	3.1	5.6	6.1	5.5									
700	4.3	7.6	8.3	7.6	3.6	4.8							
800	5.7	10.0	12.0	12.8	12.4	10.8	6.3						
900	7.3	12.7	15.0	17.5	17.8	16.8	13.5	8.2					
1,000	9.1	15.8	19.7	22.7	24.1	24.1	22.0	17.6	10.5				
1,100	11.2	18.4	23.4	28.6	31.1	32.4	31.4	28.3	22.2	12.9			
1,200	13.5	22	30	35	39	42	42	40	36	28	16		
1,300	16	28	36	43	48	53	54	54	51	45	35	20	24
1,400	19	33	43	52	59	64	68	68	63	55	42	50	50
1,500	23	39	50	61	70	78	83	86	87	84	77	66	79
1,600	26	45	59	71	82	92	99	105	108	107	103	94	112
1,700	31	52	66	83	96	108	118	126	131	132	130	124	148
1,800	35	60	78	96	112	127	139	149	157	161	161	157	188
1,900	40	68	90	110	129	146	162	175	185	192	195	194	230
2,000	46	78	102	125	147	168	186	202	216	226	232	234	278
2,100	52	88	116	143	168	192	214	233	250	264	273	278	330
2,200	59	99	131	161	190	218	243	267	287	305	318	326	386
2,300	67	111	147	181	215	246	276	305	328	349	366	379	448
2,400	75	124	164	204	241	277	311	343	372	397	419	436	515
2,500	84	139	184	228	270	311	349	386	420	450	477	498	588
2,600	93	155	205	254	303	348	392	434	472	507	540	566	667
2,700	104	172	228	282	336	388	437	484	529	570	607	640	
2,800	115												

(b) Mark VII—continued.

Range in Yards	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
1,600	28												
1,700	59	33											
1,800	94	70	39										
1,900	133	112	83	46									
2,000	175	157	131	97	54								
2,100	221	206	183	152	112	62							
2,200	272	261	241	214	177	130	71						
2,300	328	319	304	280	246	203	148	81					
2,400	388	384	372	353	323	283	233	169	92				
2,500	459	454	447	423	406	370	324	265	193	105			
2,600	526	531	528	517	496	463	424	369	301	218	118		
2,700	604	613	616	609	594	568	532	482	419	340	245	133	
2,800	689	704	711	711	700	680	649	604	547	474	384	277	149

NOTE.—(a) The trajectories have been calculated, using the formula:—

$$h \text{ ft.} = 3 X \tan (ar - ax)$$

where X = the distance to the point at which the ordinate is required.

ar = the elevation for the whole range of R yards.

ax = the elevation for a range of X yards.

(b) The trajectories of the other patterns of rifle may be taken as practically identical with the above.

APPENDIX VII.

Range Table of the S.M.L.E. Mark III Rifle.

For (a) Mark VI ammunition, giving a muzzle velocity of 2,060 f.s. (.03 inch foresight).

(b) Mark VII ammunition, giving a muzzle velocity of 2,440 f.s. (.00 inch foresight).

Range.	* Angle of Tangent Elevation on Rifle		† Angle of Descent for the last 100 yards of each range.	
	Mark VI.	Mark VII.	Mark VI.	Mark VII.
Yards.	° ' "	° ' "	° ' "	° ' "
200	0 2.0	0 8.0	—	—
300	0 7.5	0 11.3	—	—
400	0 14.0	0 15.3	0 23.0	0 12.0
500	0 21.5	0 20.2	0 36.0	0 18.0
600	0 30.0	0 25.9	0 51.0	0 27.0
700	0 39.5	0 32.7	1 8.0	0 39.0
800	0 50.0	0 40.5	1 27.0	0 55.0
900	1 2.0	0 49.6	1 48.0	1 12.0
1,000	1 15.5	1 0.1	2 12.0	1 33.0
1,100	1 30.5	1 12.1	2 40.0	1 59.0
1,200	1 47.0	1 25.7	3 13.0	2 31.0
1,300	2 5.0	1 41.1	3 51.0	3 8.0
1,400	2 24.5	1 58.4	4 34.0	3 50.0
1,500	2 46.0	2 17.8	5 20.0	4 37.0
1,600	3 9.5	2 39.5	6 8.0	4 29.0

* To get the "angle of departure" the "jump" must be added, which has been found experimentally to be between 7 and 8 minutes positive with Mark VI ammunition, and between 4 and 5 minutes negative with Mark VII ammunition.

† Taken from the smoothed curve of angles given by the height of trajectory at 100 yards from the end of each range.

Range.	* Angle of Tangent Elevation on Rifle.		† Angle of Descent for the last 100 yards of each range.	
	Mark VI.	Mark VII.	Mark VI.	Mark VII.
Yards.	° ' "	° ' "	° ' "	° ' "
1,700	3 35.0	3 3.5	7 0.0	6 26.0
1,800	4 2.5	3 30.1	7 58.0	7 29.0
1,900	4 32.0	3 59.5	9 0.0	8 39.0
2,000	5 3.5	4 31.8	10 4.0	9 57.0
2,100	5 37.0	5 7.2	11 15.0	11 24.0
2,200	6 12.5	5 45.9	12 33.0	13 1.0
2,300	6 50.0	6 28.2	13 59.0	14 48.0
2,400	7 29.5	7 14.2	15 33.0	16 45.0
2,500	8 12.5	8 4.1	17 16.0	18 53.0
2,600	8 58.0	8 58.2	19 8.0	21 12.0
2,700	9 48.0	9 56.7	21 10.0	23 42.0
2,800	10 42.5	10 59.8	23 23.0	26 24.0

* To get the "angle of departure" the "jump" must be added, which has been found experimentally to be between 7 and 8 minutes positive with Mark VI ammunition, and between 4 and 5 minutes negative with Mark VII ammunition.

† Taken from the smoothed curve of angles given by the height of trajectory at 100 yards from the end of each range.

The extreme range of the rifle may be taken as 3,760 yards with Mark VI ammunition. This was obtained with a strong rear wind. With Mark VII ammunition the extreme range is from 200—300 yards less.

APPENDIX VIII.

METHOD OF PACKING THE LIMBERED G.S. WAGON WITH LEWIS GUNS OF A COMPANY.

1. One limbered G.S. wagon is allotted to each company for carrying the 8 Lewis guns, and their equipment, of the company; i.e., 4 guns in each half of the limber.

2. Certain additional articles are issued for the carriage of each Lewis gun and its equipment in transport.

3. The total equipment for each Lewis gun is as follows:—

- i. Gun and certain *spare parts* and *tools*, in the *gun chest*.
- ii. 20 filled *magazines*, in 5 sets of *pouch equipment*.
- iii. 2 empty *magazine carriers*.
- iv. 2 empty *magazines*.
- v. 4 *boxes, carrier, magazine*.
- vi. *Spare parts bag* complete.
- vii. Reserve ammunition—Half a box of bundle packed ammunition, i.e., 624 rounds.

4. In addition to this equipment for each ground gun, there is one set of A.A. equipment per company.

5. The *pouch equipment*, with one full *magazine* in each *pouch*, the *magazine carriers* and the empty *magazines* are packed into the *boxes, carrier, magazine*. These *boxes* should be marked with distinguishing marks so that they are easily recognized by the section concerned as a whole and as individuals with reference to their "numbers" in the section.

Each *box* is divided into two compartments and should be filled with the following equipment.

		Filled magazines.	Empty magazines.	Pouches.	Magazine carriers.
No. 1 box	...	4	1	4	1
No. 2 box	...	4	1	4	1
No. 3 box	...	6	—	6	—
No. 4 box	...	6	—	6	—

In filling Nos. 1 and 2 *boxes*, 2 filled *magazines*, in *pouches*, should be placed in each half of the *box*; the empty *magazine* and the empty *magazine carrier* being placed on top of the *pouches*.

In Nos. 3 and 4 *boxes*, a complete set of *pouches* is put in first with 2 *pouches* in each compartment; the remaining set being divided into two and each half set put into these *boxes*, with one *pouch* in each half.

In putting the *pouches* into the *box* care must be taken to see that the buckles are put in one of the corners, otherwise difficulty will be experienced in shutting the lid.

No. 1 box contains the *magazines* and equipment required by the section commander No. 1 and No. 2.

No. 2 box contains the equipment required by No. 3. Nos. 3 and 4 boxes contain the equipment required by the remaining 3 numbers of the section.

6. The *gun chest* should be packed as follows:—

- i. Place the *piston rod* inside the *cylinder*, in the fittings on the front bottom of the *chest*; turn the T piece.
- ii. Place the spare *barrel* in the fittings on the bottom of the rear of the *chest*.

- iii. Place the spare *butt* on the left floor and then drop the *radiator* supporting block into position.
- iv. Pass the *cleaning rod* through the leather loop on the front side of the *chest* and turn the L piece to hold the handle of the *cleaning rod*.
- v. Place a *loading handle* in the socket in the left rear of the *chest*.
- vi. Place the *cylinder cleaning rod*, with the *wire brush* attached, in the fittings on the lid; and the *mop* into the hole in the block on the lid.
- vii. Detach the *butt* from the gun, keeping the *sling* and *field mount* on. Place the *butt* into position in the right rear of the *chest* with the *toe* of the *butt* uppermost.
- viii. Place the gun in the *chest*, as far forward as possible, seeing that the *sling* lies as flat as possible.
- ix. Put the *breech cover* and second spare *piston rod* on top of the gun.

The company *A.A. sights* and *A.A. holder* will be placed in one of the *chests*.

7. Each half *limber* should be packed as shown in the diagram in Plate "K."

1st layer :—

2 boxes of bundle packed ammunition.

8 boxes, *carrier, magazine*, in pairs of headers and stretchers, with the handles to the inside and rear respectively.

2nd layer :—

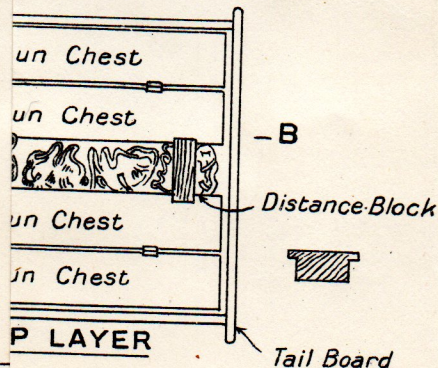
8 boxes, *carrier, magazine*.

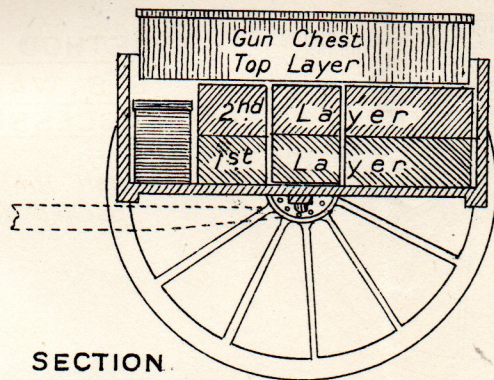
To face page 406.

F PACKING LIMBERED ON WITH LEWIS GUN RIES AND AMMUNITION.

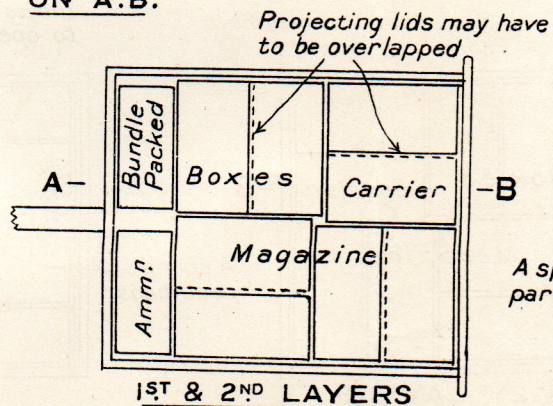
only shown other half
iliary.

ether for Lids
ack to back.



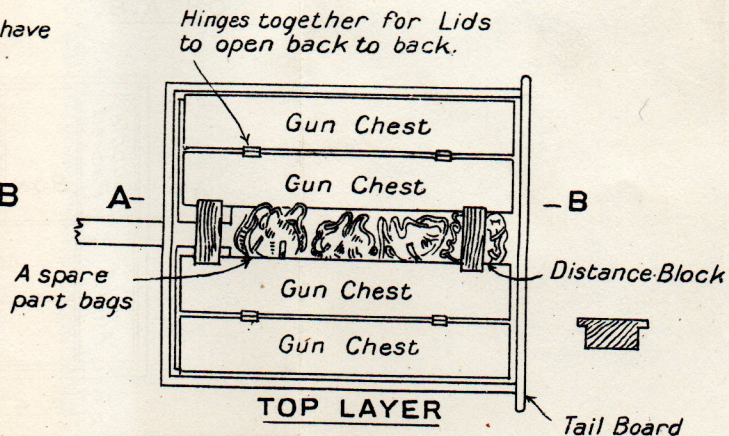


SECTION
ON A.B.



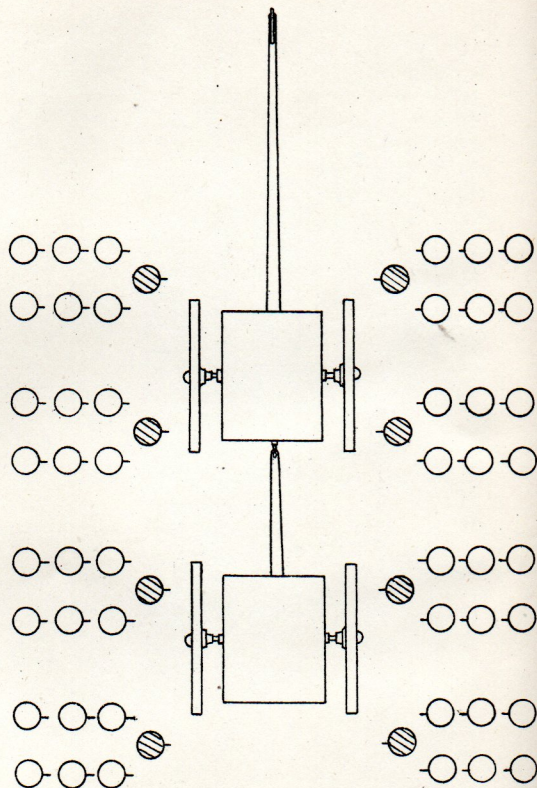
METHOD OF PACKING LIMBERED G.S. WAGON WITH LEWIS GUN ACCESSORIES AND AMMUNITION.

*Half limber only shown other half
packed similarly.*



UNLOADING DRILL

LEWIS GUN SECTIONS FORMED UP
PRIOR TO UNLOADING FROM L.G.S. WAGON.



3rd layer :—

4 guns in their *chests*, with the *spare parts bags* in the middle.

The *A.A. mounting* will also go in the middle in one half limber.

8. Drill for loading and unloading the limber.

- i. In order to prevent confusion at the limber on the receipt of orders to take the guns out for action, it is essential that each man should know where to go and what to do when these orders have been given. Therefore a simple drill for loading and unloading should be taught to the L.A. sections.

On receipt of the order to take the guns out for action :—

- (a) The 4 sections move to position on each side of the limber, as shown in Plate "L."
- (b) The section commanders advance to the limber and untie the cover cords. The Nos. 1 and 2's advance to the limber. The Nos. 2 sling the *spare parts bags* over their shoulders. The Nos. 1 and 2 lift the gun *chests* off the limber and move to the section positions, take out the guns, &c., and prepare for action.
- (c) The Nos. 3 take out *boxes Nos. 1 and 2* and move them to the section position where they give the No. 1 box to the Nos. 2, each of whom distributes the 4 *magazines* between the

section commander, No. 1 and himself, placing the spare empty *magazine* in No. 1's *pouch* and leaving it in the *box*. The Nos. 3 take out their own equipment from the No. 2 *boxes*.

- (d) The Nos. 4 take the remaining two *boxes* to the section positions and distribute the *magazines* to their respective numbers.
- (e) *Gun, equipment, &c.*, laid out.
- (f) Empty *chests* and *boxes* reloaded in the limber.
- (g) Sections fall in where the equipment is laid out and prepare to move off.

The company serjeant major or a specially detailed senior N.C.O. should supervise the operation.

- ii. These movements should be reversed when loading the guns in the limber.

(As to prices in brackets see top of page 2.)

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The King's Own (Royal Lancaster Regiment).
The King's Own Scottish Borderers.
The Lancashire Fusiliers.
The Leicestershire Regiment.
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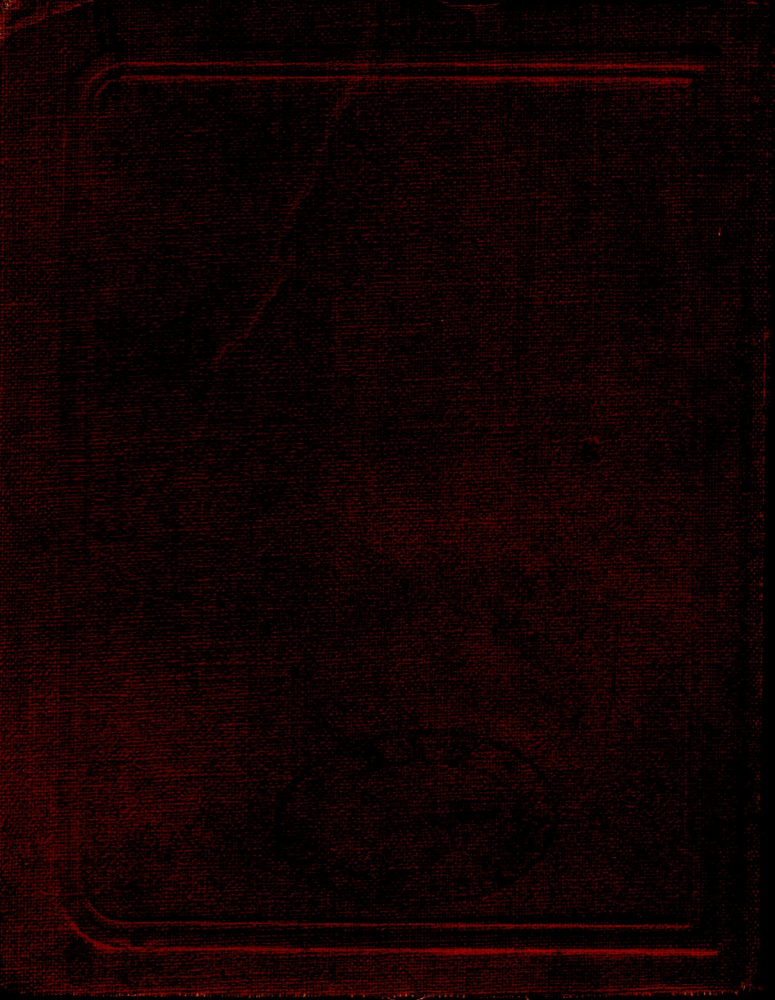
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